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JOSEPH A. HOLMES, DIRECTOR

METAL-MINE ACCIDENTS
IN THE
UNITED STATES
DURING THE CALENDAR YEAR 1912

COMPILED BY

ALBERT H. FAY



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METAL-MINE ACCIDENTS DURING THE CALENDAR YEAR 1912.

Compiled by ALBERT H. FAY.

INTRODUCTION.

It is gratifying to note that the fatality rate in the metal mines of the United States was lower in 1912 than in 1911. The total number killed as reported by the various operators was 661, in comparison with 695 for the preceding year. The number of men employed during 1912 was 169,199, as compared with 165,979 for 1911. The fatality rate was therefore 3.91 per 1,000 men employed, as against 4.19 per 1,000 for the year before.

The latest available fatality rates in the metal mines of a number of foreign countries are as follows: Australian colonies, ranging from 0.68 to 2.55, except Tasmania, where the rate for 1912 was 9.52 per 1,000 men employed, this high rate being due to a mine fire in which many lives were lost; Italy, 1.18; Portugal, 1.34; Spain, 1.49; Germany, 1.51; Great Britain, 1.53; Japan, 1.76; France, 3.16; Transvaal, 4.14. (See Table 19.)

Fatality figures for 1911 and 1912 for different classes of mines in the United States follow:

Number of men employed and number of men killed in and about all mines and quarries in the United States during 1911 and 1912.

Kind of mines.	Number employed.	Number killed.	
		Total.	Number per 1,000 employed.
Metal mines.....	159,199	661	3.91
Coal mines.....	722,662	2,360	3.27
Quarries.....	113,105	213	1.88
Total for 1912.....	1,004,966	3,234	3.22
Total for 1911.....	1,005,281	3,602	3.58

DECREASE OF FATALITIES IN 1912.

The total number of persons killed in the metal mines during 1912 was 661, as compared with 695 for 1911, a decrease of 34, as shown in the table following. In this connection, it should be borne in mind

that the figures for 1912 include 21 fatalities in Alaska, for which there are no comparable figures for 1911.

A number of the States show a slight increase, but the principal metal-mining States show marked decreases, as follows: Michigan, 38; Minnesota, 26; Montana, 12; Nevada, 16; New Jersey, 10; and Utah, 8. The decreases in Michigan and Minnesota were largely due to an active safety campaign during the past three years. It is gratifying to note that the Lake Superior mine operators are meeting with such marked success within so short a period of time. It shows what may be done in other States if special efforts are made to safeguard all engaged in the mining industry. The number of fatalities in Montana, Nevada, and New Jersey in 1911 was far above the average by reason of several abnormal accidents, such as explosions of dynamite, mine fires, and inrushes of water, so that the figures for 1912 are more nearly normal.

Number of men killed in and about the metal mines in the United States during 1911 and 1912, showing increase or decrease for 1912.

State.	Number killed.		Increase or decrease.
	1911	1912	
Alabama.....	10	33	+23
Alaska.....	(a)	21	.....
Arizona.....	70	67	- 3
Arkansas.....	2	1	- 1
California.....	38	40	+ 2
Colorado.....	43	48	+ 5
Florida.....	9	6	- 3
Georgia.....	2	0	- 2
Idaho.....	23	29	+ 6
Illinois.....	1	1	0
Indiana, Louisiana, and West Virginia.....	1	0	- 1
Iowa.....	1	0	- 1
Kansas.....	2	2	0
Kentucky.....	3	1	- 2
Michigan.....	134	96	-38
Minnesota.....	76	50	-26
Missouri.....	38	36	- 2
Montana.....	62	50	-12
Nevada.....	50	34	-16
New Hampshire.....	0	1	+ 1
New Jersey.....	23	13	-10
New Mexico.....	11	13	+ 2
New York.....	10	17	+ 7
North Carolina.....	4	1	- 3
Ohio.....	0	1	+ 1
Oklahoma.....	0	2	+ 2
Oregon.....	2	1	- 1
Pennsylvania.....	1	2	+ 1
South Dakota.....	8	6	- 2
Tennessee.....	10	12	+ 2
Utah.....	49	41	- 8
Vermont.....	0	2	+ 2
Virginia.....	6	4	- 2
Washington.....	3	4	+ 1
Wisconsin.....	3	22	+19
Wyoming.....	0	4	+ 4
Total.....	695	661	-34

^a No report.

SCOPE OF STATISTICS.

The following tables giving the accidents in the metal mines in the United States for the calendar year 1912 have been compiled by the Bureau of Mines from reports received directly from the operators (except in New York) and represent all stages of the industry, from the lone prospect to the large mine on a dividend-paying basis. In the collection of the statistics no distinction was made as to the magnitude of the operations.

Although the Bureau of Mines is authorized to collect data relating to accidents at mines, there is no Federal law compelling operators to render such reports. The reports received from operators are voluntary responses to the bureau's requests for this information. The majority of these requests were answered cheerfully and immediately. Second, third, and fourth requests were sent to those who from one cause or another failed to respond to the first. The statistics herein tabulated represent 5,967 operators who actually worked their mines during the year, this number comparing with 5,232 who reported for 1911, a gain of over 13 per cent. As far as can be ascertained all of the large companies made out detailed reports, so that, if measured by production, the statistics given are representative of the industry. The small number of operators who did not reply represent less than 10 per cent of the names on the mailing list and, when compared as to the amount of ore produced, form a much smaller percentage of the industry. In this number are represented a few prospectors, promotion companies, moribund corporations, and abandoned properties.

Many of the answers received indicate that one reason why some operators did not reply was that their mines or prospects were small, and that as no accidents occurred a reply was not deemed necessary. It is hoped that all operators, whether large or small, will consider their property worthy of a report for the year 1913 whether an accident occurred or not. The true accident ratio can be obtained only when complete reports are rendered that give the number of men employed as well as the number of days worked.

The tables in the following pages are arranged so as to represent five divisions of the mining industry as follows:

Copper mines.—All of the copper mines and prospects that were reported in operation in the various copper-producing States. The list represents 814 operators.

Gold and miscellaneous metal mines.—Under this heading are the gold mines, both lode and placer, silver mines, lead-silver mines, gold-silver mines, the lead and zinc mines other than those in the Mississippi Valley, and mines working ores of quicksilver, manganese, tungsten, vanadium, chromium, etc. Pyrite mines are included in

this class, as the cinder is used in some of the metallurgical works for its iron and copper content. Bauxite mines, because bauxite is the principal source of metallic aluminum, are classed under this division. This group represents 4,137 operators, who reported their mines as active part or all of the year.

Iron mines.—All of the important iron mines, representing 194 operators, are given in the tables showing statistics relating to iron mining.

Lead and zinc mines (Mississippi Valley).—The lead and zinc mines, represented by reports of 464 operators of that region, are grouped together as representing an industry in which general conditions are similar.

Miscellaneous mineral mines.—The miscellaneous mineral mines, representing 358 operators, include those for asbestos, asphaltum, barite, feldspar, garnet, graphite, gypsum, kaolin, mica, phosphate rock, quartz, talc, salt, and soapstone. Coal mines are not included in this classification.

ACKNOWLEDGMENTS.

The acknowledgments of the bureau are due to the State mine inspectors and other officials of the various State mining departments who have rendered invaluable assistance in verifying and correcting from their records, often at the expense of considerable time and trouble, the data reported to the bureau by the operators. To both the operators and the State mining officials the Bureau of Mines extends its thanks for this hearty cooperation.

PUBLICATION OF ACCIDENT STATISTICS.

In the publication of the statistics contained in this report, it is not the purpose of the Federal Bureau of Mines to encroach on the field covered by the annual or biennial reports of the State mine inspectors or mining departments. It is hoped, however, that the distribution of the data contained herein will help to establish a uniform basis for recording and reporting mine accidents, the number of men employed, and the number of days' work performed. By all of the statistics being thus placed on the same basis, the making of comparisons and the drawing of conclusions will be rendered much easier.

The plan that, it is believed, will yield best results in procuring satisfactory data on this subject is that of cooperation between the Bureau of Mines and the inspectors or other appropriate representatives of the States, as this will insure such uniformity in method and results as will make the data for each State comparable with the data of any other State, and the data for the mining industries of the United States comparable with those of the mining industries in

other countries. This plan will also have the merits of avoiding duplication in labor and expense and of insuring satisfactory results at minimum cost to both the Federal Government and the several States. Such an arrangement has been made with W. W. Jones, State mine inspector of New York, who furnished data for that State. A number of States have no inspectors for metal mines and there is a lack of uniformity in the reports issued by the various States that have inspectors. The fiscal years of the States are not uniform, some ending in June, others in September or October, and still others conforming to the calendar year.

In those States having an inspection service the fatality figures given herein were submitted to the various inspectors for verification, and from nearly all the bureau has received hearty cooperation. Only a few of the States collect statistics covering serious injuries and still fewer give any attention to slight injuries; so that on these points it is impossible to check closely. Although the total number of deaths reported in the various States agrees closely with the inspectors' reports, there is some variation as to the classification.

The bureau has revised its original classification of 1911, omitting a number of minor causes and adding others that the reports of 1911 indicated as important causes of injury.

The Bureau of Mines will be glad to receive suggestions from State inspectors and others interested in mining as to the form in which the statistical data can be presented most effectively and as to the method of making their publication most useful to the mining industry.

COPPER MINES.

The figures given in Tables 2, 4, and 6, are compiled from reports of 814 operators of copper mines employing 51,776 men, of whom 37,539 were employed underground and 14,237 on the surface. Of the 814 replies, 455 were from prospects and small mines in which less than 1,000 days' labor was performed. The other 359 were from operators of mines where 1,000 or more days' labor was performed. In addition to the mines and prospects mentioned above, 328 properties were reported as idle. The increase in the number of copper-mine operators is largely due to a closer classification. This was made possible by reason of the fact that the majority of operators specified in their report the principal ore produced.

The total number of deaths and injuries due to accidents as reported (Table 1) follows: Deaths, 239, or 4.62 per 1,000 men employed; serious injuries, 1,807, or 34.90 per 1,000; slight injuries, 11,830, or 228.48 per 1,000. Of the total number of fatalities, 185 occurred underground, making the rate per 1,000 men employed 4.93. The number of surface fatalities was 54, or 3.79 per 1,000.

GOLD AND MISCELLANEOUS METAL MINES.

The accidents in and about the gold and miscellaneous metal mines are compiled in Tables 2, 4, and 7 from the reports of 4,137 operators, employing 44,144 men, of whom 31,322 were underground and 12,822 surface men. The deaths and injuries due to accidents (Table 1) are as follows: Deaths, 176, or 3.99 per 1,000 men employed; serious injuries 613, or 13.89 per 1,000; slight injuries 3,180, or 72.04 per 1,000. Of the total number of fatalities, 147 occurred underground, or 4.69 per 1,000, and 29 on the surface, or 2.26 per 1,000.

The rates of serious and slight injuries are low when compared with the rates for iron and copper mines. This difference may be explained in part by the fact that this group includes many prospects and small mines that keep no records. Many of these mines are in States where there is no inspection, and the operators are not required to keep accident records. Fatal accidents impress themselves on the memory and are easily reported. The majority of the larger companies operating gold, silver, and lead-silver mines of the West have, for their own protection, hospital service and medical aid for their employees and are keeping excellent records.

IRON MINES.

The figures given in Tables 2, 4, and 8 are compiled from the reports of 194 iron-mine operators, who employed 45,746 men, of whom 26,799 were employed underground and 18,947 on the surface, including those engaged in steam-shovel work. There were also 193 iron-mine owners who reported their property as idle during 1912. The number of deaths and injuries resulting from accidents in these mines (Table 1) is as follows: Deaths, 172, or 3.76 per 1,000 men employed; serious injuries, 1,800, or 39.35 per 1,000; and slight injuries, 8,707, or 190.33 per 1,000. Of the total number of fatalities, 136 occurred underground, or 5.07 per 1,000 employed, and 36 employees were killed while engaged in surface work, making this rate 1.90 per 1,000.

LEAD AND ZINC MINES.

The lead and zinc mines for which data are compiled include mines in the Mississippi Valley only. The lead and zinc mines of other States are grouped with miscellaneous metal mines on account of the difficulty of making a distinct classification, as in many places, for instance, in the lead-silver mines in the Coeur d'Alene district of Idaho, lead and zinc occur as associated metals in silver ores. The Mississippi Valley lead and zinc mines form a class by themselves in which mining conditions are similar, and in which no other important minerals occur, and hence are easily segregated.

The figures given in Tables 2, 4, and 9 are compiled from the reports of 464 operators, employing 14,332 men, of whom 10,812 were em-

ployed underground, and 3,520 on the surface. Of the 464 operators reporting, 137 operated small mines and prospects at each of which less than 1,000 days' labor was performed. In addition to the above, 318 operators reported their mines as idle during the year.

The total number of deaths and injuries due to accidents as reported (Table 1) is as follows: Deaths, 54, or 3.77 per 1,000 men employed; serious injuries, 147, or 10.26 per 1,000; and slight injuries, 1,849, or 129.01 per 1,000. Of the total number of fatalities 48 occurred underground, making the rate 4.44 per 1,000 men employed below the surface. The surface fatalities were 6, or 1.70 per 1,000 employed. Three of the surface fatalities were due to a boiler explosion.

MISCELLANEOUS MINERAL MINES.

The reports of 358 operators of miscellaneous mineral mines are compiled in Tables 2 and 10. These mines employed 13,201 men, of whom 3,584 were employed underground and 9,617 on the surface. The total number of deaths and injuries due to accidents reported (Table 1) is as follows: Deaths, 20, or 1.52 per 1,000 men employed; serious injuries, 135, or 10.23 per 1,000; and slight injuries, 666, or 50.45 per 1,000. When compared with the rates for the copper and iron mines, these ratios seem exceedingly low. Judging from the reports received, this difference is largely explained by the fact that the mines, being small, do not keep complete records. The majority of these mines are in States where there are neither State inspection nor compensation laws, and operators are therefore not obliged to keep accident records or make reports of accidents. Furthermore, about 75 per cent of the men are employed on the surface, the danger being thus reduced to the basis of quarry operations.

ACCIDENT STATISTICS BY STATES.

A compilation of the accident statistics by States is given in Tables 3, 5, 11, 12, and 13, representing 5,967 operators employing 169,199 men, of whom 110,056 were employed underground and 59,143 on the surface. The total number of fatalities and serious and slight injuries due to accidents is as follows: Deaths 661, or 3.91 per 1,000 men employed; serious injuries 4,502, or 26.61 per 1,000; and slight injuries 26,232, or 155.04 per 1,000. Of the total number of fatalities, 522 occurred underground, or at the rate of 4.74 per 1,000, and 139 were killed on the surface, or 2.35 per 1,000 employed.

It will be noted that there is much irregularity in the serious and slight injury ratios in the various States, the cause of which is discussed under serious and slight injuries with extracts from the laws relating thereto.

CAUSES AND DISTRIBUTION OF ACCIDENTS.

In Table 15 is given the percentage of accidents due to any one cause in each group of mines and for all of the mines combined. It will be noted, for instance, that 36.40 per cent of the deaths in copper mines, 29.88 per cent of the serious injuries, and 27.05 per cent of the slight injuries were due to falls of rock or ore from roof or wall. A similar comparison may be made for any group of mines for any one of the 41 causes enumerated. This table also shows that approximately two-thirds of the total deaths and injuries that occurred in and about metal mines were caused as follows:

Of the fatal accidents, 34.52 per cent were due to falls of ore or rock from roof, wall, or bank; 14.21 per cent to explosives; 12.55 per cent to falling down stope, shaft, winze, or bank, and 9.99 per cent to haulage systems.

Of the serious accidents, 27.23 per cent were due to falls of roof, wall, or bank; 15.88 per cent to car and haulage systems; 10.06 per cent to machinery; and 9.35 per cent to timber and hand tools.

Of the slight accidents, 24.07 per cent were due to falls of roof, wall, or bank; 12.29 per cent to car and haulage systems; 10.94 per cent to machinery, and 12.86 per cent to timber and hand tools.

Fatalities due to falls of roof or wall were 2 per cent more than in 1911, and the fatalities due to explosives were 2.98 per cent more than in 1911. The decrease in fatalities due to falling down shaft, winze, etc., was 2.74 per cent and to mine fires 5.17 per cent.

FATALITIES AT PROSPECTS AND SMALL MINES.

In the compilation of the reports for 1912, it has been possible to separate many prospects and small mines from the larger mines as follows: (1) Those in which more than 1,000 days' (shifts) work was performed and (2) those in which less than 1,000 days' work was done.

A mine in which 1,000 days' work is done practically represents a 3-man mine; in other words, 1,000 days' work is equivalent to the work done by 3 men working 333 shifts, or 4 men working 250 shifts, or 25 men working 40 shifts. The classification by the amount of work done rather than by the number of men employed seems to be the fairest to all concerned. On the basis of the number of men employed, a small mine may employ 20 men 30 shifts, representing 600 days' work; another mine with 4 men may work continuously for 300 shifts, representing 1,200 days' work. With 5 men employed as the dividing line, the former mine would be listed and the latter would not, although the 4-man mine did twice the amount of work.

The report for 1911^a stated that the proper recording, reporting, and compilation of fatalities at small mines would show surprisingly high fatality rates. The figures collected for 1912 confirm this statement, as shown in the accompanying table. Reports were received from 3,586 of these small operators, representing 10,820 men. Of this number 27 were killed, or 2.49 per 1,000 men employed. However, it must be borne in mind that these men worked on an average only 105 shifts each per year, or were working practically only one-third of the time. On the basis of the number of days' labor performed (1,137,139), the 10,820 men are equivalent to 3,790 300-day workers, which with 27 fatalities brings the rate up to 7.05 per 1,000 as compared with 4.02 per 1,000 men (300-day basis) employed at mines where the total number of days worked was more than 1,000. This method of interpretation shows that the work of the prospector is more hazardous than is that of the operating mine. This relation is further illustrated in figure 1 (p. 19).

The larger part of the fatalities in small mines and prospects may be distributed by causes as follows: Explosives, 26 per cent; shaft accidents, 22 per cent; fall of roof or wall, 18 per cent.

In many States the inspection laws do not apply to small mines and prospects. As there is such a high fatality rate among the miners in this class of mines they should be given more consideration, for their work is certainly important and is necessary for the growth of the industry. The prospector is usually far from medical aid and hospital service; many times he is working alone and has no means of communicating with anyone if an accident occurs; he is exposed to all kinds of weather; and he does not always have the best tools and apparatus which tend to lessen danger.

Fatality rate at prospects and small mines compared with rate at mines at which 1,000 or more days' labor was performed during 1912.

Item.	Mines in which less than 1,000 days' labor was performed.	Mines in which 1,000 or more days' labor was performed.
Number of operators reporting.....	3,586	2,381
Number of men employed.....	10,820	158,379
Number of days of labor.....	1,137,139	47,361,371
Number of shifts worked per man.....	105	299
Number of men killed.....	27	634
Number of men killed per 1,000 employed.....	2.49	4.00
Number of 300-day men ^b	3,790	157,871
Number of men killed per 1,000 300-day workers.....	7.05	4.02

^a Fay, A. H., Metal-mine accidents in the United States during the calendar year 1911: Tech. Paper 40, Bureau of Mines, 1913, p. 6.

^b Obtained by dividing total days' labor performed by 300.

Number of men killed in 1912 in metal mines operated with less than 1,000 days' labor, with the fatalities classified according to cause.

UNDERGROUND:

By fall of rock or ore from roof or wall.....	4
By timber or hand tools.....	1
By explosives.....	7
By other causes.....	4

IN SHAFT:

By falling down shafts.....	4
By objects falling down shafts.....	1
By other shaft accidents.....	1

ON THE SURFACE:

By machinery.....	1
By other causes on surface.....	3
By falls or slides of rock or ore (where surface mining is done).....	1

Total..... 27

FATALITIES AT PLACER MINES.

The accompanying tables contain the combined reports of 459 operators of placer mines, including dredges, hydraulic mines, and underground gravel mines. It will be noted from the tables that 3,289 men were employed at these mines, and that 8 men were killed, representing a fatality rate of 2.43 per 1,000 men employed. The average length of time these mines were operated was 258 days; the average length of time other metal mines were operated was 287 days. Although this fatality rate is somewhat lower than that of the other metal mines, yet the length of time the employees were exposed to the mining risk was less. If the number of employees be reduced to the 300-day basis, it becomes equivalent to 2,793 men, with a fatality rate of 2.83, as compared with 4.11 for all other mines, not including placer or coal mines. The tables follow.

Number of men employed, number of days worked, and number of men killed in and about the placer mines of the United States during the calendar year 1912.

State.	Number of active operators.	Number of employees.	Days' work performed.	Average number of days worked.	Number killed.						Number of men killed per 1,000 employed.
					By machinery.	By cave of bank.	By explosives.	By hydraulic giants.	By other causes.	Total.	
California.....	199	1,657	520,590	314	2	2	1	1	2	8	4.83
Colorado.....	22	171	43,465	190						0	0.00
Idaho.....	76	711	143,765	202						0	0.00
Montana.....	53	294	61,565	209						0	0.00
Nevada.....	11	53	8,790	165						0	0.00
Oregon.....	59	191	23,979	126						0	0.00
South Dakota.....	8	47	8,360	178						0	0.00
Washington.....	10	35	4,422	126						0	0.00
Wyoming.....	8	38	5,320	140						0	0.00
Other States ^a	13	92	28,835	313						0	0.00
Total.....	459	3,289	849,091	258	2	2	1	1	2	8	2.43

^a Includes Arizona, Georgia, New Mexico, North Carolina, and Utah.

Accidents in placer mines of the United States during year ended Dec. 31, 1912.

Cause of accident.	Number killed.	Number seriously injured.	Number slightly injured.
<i>Dredging.</i>			
Machinery.....	2	11	6
Electricity.....	0	0	0
Boiler explosions or bursting steam pipes.....	0	0	1
Falls of persons.....	0	1	7
Tools.....	0	5	22
Other causes.....	2	3	15
Total number killed or injured by dredging accidents.....	4	20	51
<i>Hydraulicking.</i>			
Cave of bank.....	2	0	3
Explosives.....	1	0	0
Hydraulic giants.....	1	1	1
Falls of persons.....	0	1	4
Rock while handling.....	0	0	7
Tools.....	0	0	4
Machinery, derricks, etc.....	0	1	0
Other causes.....	0	0	4
Total number killed or injured by hydraulicking accidents.....	4	3	23
<i>Underground.</i>			
Fall of roof or gravel.....	0	0	5
Timber or hand tools.....	0	0	3
Explosives.....	0	0	1
Falls of persons.....	0	0	0
Haulage.....	0	0	1
Drilling.....	0	0	1
Hoisting.....	0	0	1
Steam (when steam points are used).....	0	0	0
Other causes.....	0	0	0
Total number killed or injured by underground accidents.....	0	0	12
Grand total.....	8	23	86

METAL-MINE ACCIDENTS AND COAL-MINE ACCIDENTS COMPARED.

The metal mines of the United States employed 169,199 men during 1912 in comparison with 722,662 men employed in coal mines during the same period. The total number killed in the coal mines was 2,360, this number comparing with 661 in the metal mines. The death rate in the former was 3.27 and in the latter 3.91 per 1,000 men employed. The majority of States have established systematic coal-mine inspection, which tends to reduce the accidents; whereas in many of the States where metal mining is carried on there is no inspection service.

On account of the large disasters that occur in the coal mines and the prominence given to them by the newspapers, coal mining is usually considered much more hazardous than metal mining. The metal mines as a rule do not claim their death toll in disasters that involve many men. The large majority of men killed in the metal mines are killed one at a time. Altogether, there were reported in the metal mines in 1912, 26 accidents in which 2 or more men were killed at one time, making the total thus killed 81, or 12.3 per cent of all the fatalities in comparison with 19.5 per cent in 1911.

Although the fatality rate in metal mines during 1912 was 3.91 per 1,000 men employed, and in coal mines 3.27, yet the comparison is

not absolutely fair for the reason that the metal miners worked 287 days as compared with 225 days for the coal miners. Thus the men in the metal mines were exposed to the mining risk 62 days longer than were the coal miners. If both be reduced to the 300-day basis, the metal-mine fatality rate becomes 4.09 in comparison with 4.36 for the coal mines. This comparison is further illustrated in the accompanying table and by figure 1.

Fatality rates in coal and metal mines compared on the basis of the average number of men employed, and the equivalent of 300-day workers.

Basis of figures.	1911			1912		
	Number of men employed.	Number killed.	Number killed per 1,000 employed.	Number of men employed.	Number killed.	Number killed per 1,000 employed.
<i>Metal mines.</i>						
Average number employed.....	165,979	695	4.19	169,199	691	3.91
Number of 300-day workers.....	156,088	695	4.45	161,661	691	4.09
<i>Coal mines.</i>						
Average number employed.....	728,348	2,719	3.73	722,662	2,360	3.27
Number of 300-day workers.....	534,158	2,719	5.09	541,776	2,360	4.36

METAL-MINE ACCIDENTS IN FOREIGN COUNTRIES.

Table 19 has been compiled from official reports of representative foreign countries in which mining is an important industry. The table shows the number of men employed in and about metal mines, the number killed, and the rate of fatalities per 1,000 men employed. It will be noted that the rates in nearly every country are lower than those of metal mines in the United States.

In this connection it may be said that for many years rigid inspection has been enforced in most of these countries. In the older nations, as Great Britain, Germany, and France, the majority of the miners have been engaged in mining from childhood, and their fathers and grandfathers have worked in mines. It must also be noted that in these countries the majority of the miners have a common language, and there is little misunderstanding of orders given by their superiors.

Conditions in the Transvaal and in the United States are similar to a marked degree. Both countries are comparatively new; English is spoken in both; and both employ much foreign labor. The Transvaal field employs more than 150,000 Kaffirs who come from the uncivilized or the grazing and agricultural districts of Africa. They can neither speak nor understand the language of their superiors, they know nothing about machinery, and they do not realize the dangers of mining. A large percentage of the miners of the United States come from the agricultural districts of southern Europe. They do not understand the language of the country, they have prac-

tically no knowledge of machinery, and do not realize the dangers of electricity, explosives, etc. Some may pretend, often with disastrous results, to understand orders given by their superiors.

DETERMINATION OF NUMBER OF MEN EMPLOYED.

Although the bureau's requests for information on which to base this report called for the average number of men employed during the year, it is possible that some of the companies, especially the smaller ones, may have reported the number of men on the pay roll rather than the average number employed. Unless exact records are kept, it is not easy to determine the average number of men actually at work during the year. The number of days the mine is operated and the number of deaths that occur are known quantities and are accurately reported. The number of men on the pay roll is also a known term. The average number of men at work during the year must be calculated.

As an example, two mines, A and B, may be cited. Mine A employed men as follows: Fifty men for 100 shifts; 50 men 150 shifts; 100 men 200 shifts; 500 men 250 shifts; and 1,000 men 310 shifts. The number of men on the pay roll was, therefore, 1,700, and the total work done was equivalent to the work of one man for 467,500 days. As the mine was in operation 310 days, the average number of men actually at work was $467,500 \div 310$, or 1,508. If the number of men killed was 8, the rate per 1,000 employed on the pay-roll basis is 4.70; but based on the actual average number of men (1,508) the rate is 5.31 per 1,000. In other words, the latter rate (5.31) is 13 per cent higher than the rate on the pay-roll basis and is, no doubt, more nearly correct.

A detailed comparison between the two hypothetical mines is given below:

Number of men employed and number of days worked at mines A and B.

MINE A (OPERATED 310 DAYS).		
Number of men on pay roll.	Shifts worked per man.	Total days' labor performed.
50.....	100	5,000
50.....	150	7,500
100.....	200	20,000
500.....	250	125,000
1,000.....	310	310,000
1,700.....	275	467,500
MINE B (OPERATED 250 DAYS).		
50.....	100	5,000
50.....	150	7,500
100.....	200	20,000
1,500.....	250	375,000
1,700.....	238	407,500

Comparative fatality rates at mines A and B.

Item.	Mine A.	Mine B.
Total men on pay roll.....	1,700	1,700
Average number at work.....	1,508	1,630
Number of 300-day workers.....	1,558	1,358
Total number of days of work.....	467,500	407,500
Average number of shifts or days worked per man.....	275	238
Total number killed.....	8	8
Total killed per 1,000 men (pay-roll basis).....	4.70	4.70
Total killed per 1,000 men (average number at work).....	5.31	4.91
Total killed per 1,000 men (basis of 300-day workers).....	5.13	5.89

If the number of men killed in mine B was 8, the rate per 1,000 employed on the pay-roll basis is 4.70, as in mine A; but, based on the actual average number of men who worked, the rate is 4.91, as compared with 5.31 for mine A, thus indicating that mine B is safer than mine A, an indication that, as shown below, is misleading.

As mine B was operated only 250 days, whereas mine A was operated 310 days, the resulting 8 fatalities in each are not directly comparable, as the men in mine B were exposed to the mining risk 60 days less than the men in mine A. A true comparison, however, can be made by reducing the number employed to a basis of 300-day workers, a number obtained by dividing the total number of days' labor performed at each mine by 300. The death rate per 1,000 300-day workers in mine A is 5.13, as compared with 5.89 in mine B.

FATALITY RATES COMPARED ON BASIS OF YEAR OF 300 WORKING-DAYS.

A comparison of the fatality rates in the various groups of mines, based on a year of 300 working days, is presented in figure 1. The upper line represents the death rate per 1,000 of the average number of men employed, as reported; the lower (black) line is based on the number of 300-day workers, obtained by dividing the total number of days of work by 300. In the figure it will be noted that as the copper mines worked more than 300 days the rate for this group is reduced slightly, whereas for all other mines the rate is somewhat increased. The increase is especially noticeable in lead and zinc mines, coal mines, and small mines and prospects. The coal mines are operated approximately 225 days per year. On that basis the fatality rate is 3.27 per 1,000 employed. If reduced to a 300-day basis, the fatality rate is 4.36, as compared with 4.09 for the metal mines.

It is evident from the figures given above that a true comparison can not be made without reducing the number of days to a common denominator. The German Imperial Insurance Office requires the reports submitted to its office to show the total number of days' labor performed at the various industrial plants. This number is divided by 300, which gives the equivalent number of 300-day workers.

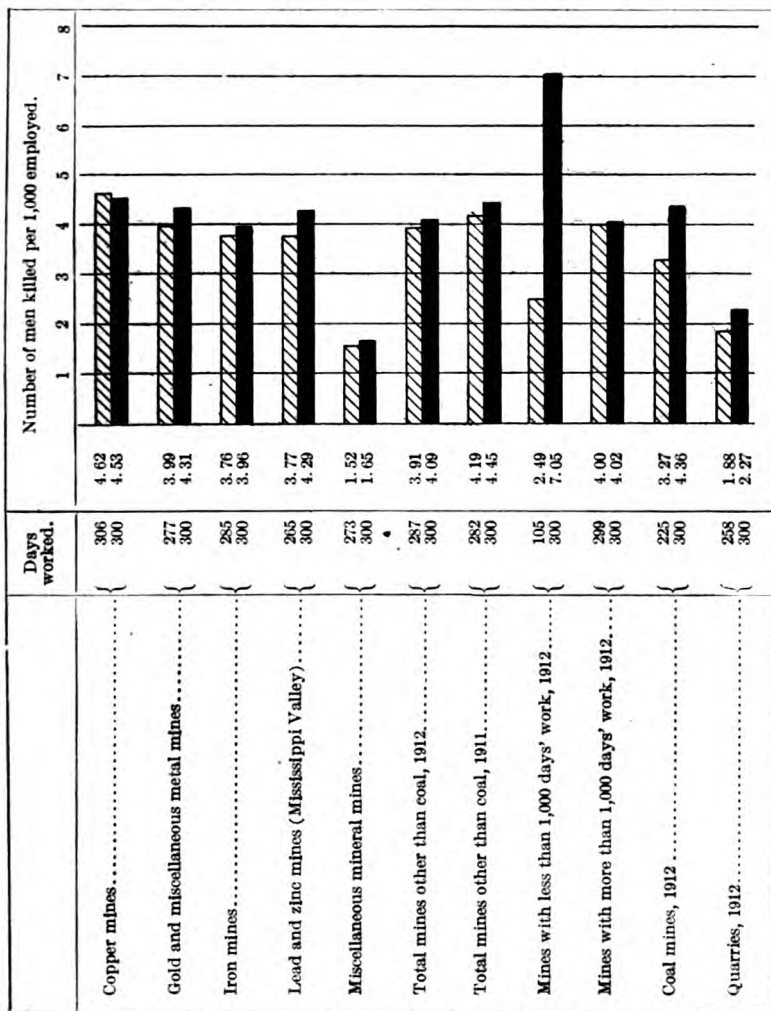


FIGURE 1.—Comparison of fatality rates based on actual time worked with rates based on a 300-day year.

Neill ^a followed the German precedent and reduced the total number of employees to the equivalent of 300-day workers, and in this manner he was able to compare the accident ratios of the various departments of the iron and steel industry, as shown in the accompanying table. As during the year a mine can be operated only about 300 days, if Sundays, holidays, and a few days for repairs be excluded, a 300-day year has been used in this report and a comparison of the accidents in the various States has been made upon this basis in Table 16.

Table 16 gives the average number of days actually worked at the mines in the various States during the year, this number ranging from 151 in Washington to 341 in Alaska, the average for the United States being 287 days. The first column under "fatalities" gives the rate as obtained from the actual number of men reported as working, and the second column gives the rate when the number of employees is reduced to the equivalent of 300-day workers. For example, the number of days worked in Alabama was 270, which gives a fatality rate of 6.84 per 1,000 men employed. Alaska shows 341 days worked, with a fatality rate of 10.97. This comparison is not fair, inasmuch as the men in Alaska were subjected to the hazards of mining 71 days longer than in Alabama. By reducing the rate of each to the 300-day basis, the rate for Alabama becomes 7.60 and for Alaska 9.65. Similar comparisons may be made for other States.

Japan is one of the few countries in which the total number of days' labor at metal mines is reported, but until all countries have a common system of reporting, classifying, and publishing mine-accident statistics no true comparison can be made. It is hoped that all of the principal mining countries will eventually adopt a uniform year upon which to base their accident ratios.

Accidents in the iron and steel industry for the year ending June 30, 1910, on the basis of a 300-day year.^b

Department.	Number of departments giving complete reports. ^c	Number of men on pay roll.	Number of 300-day workers.	Fatalities.		Permanent injuries.		Temporary disabilities.	
				Total.	Rate per 1,000 300-day workers.	Total.	Rate per 1,000 300-day workers.	Total.	Rate per 1,000 300-day workers.
Blast furnaces.....	57	19,097	19,604	60	3.06	50	2.55	4,937	251.8
Bessemer steel works.....	15	4,036	3,668	16	4.36	11	3.00	1,525	415.8
Open-hearth steel works.....	32	8,983	9,017	30	3.33	38	4.21	2,999	332.6
Puddling plants.....	12	1,387	1,239	.....	.....	.....	.....	62	50.0
Rolling mills (mechanical operators).....	36	14,938	13,566	28	2.06	40	2.95	4,131	304.5
Rolling mills (hand operators).....	62	12,823	10,675	11	1.03	28	2.62	3,872	362.7
Mechanical departments.....	53	18,551	17,421	23	1.32	31	1.78	4,093	234.9
Yards.....	52	17,975	16,441	47	2.86	23	1.40	2,413	146.8
Steel foundries.....	33	17,145	16,480	8	0.49	37	2.25	2,153	130.6
Departments not specific.....	.....	43,669	38,868	51	1.32	142	3.67	9,179	237.1
Total or average.....	.....	158,604	146,979	274	1.86	400	2.72	35,364	240.6

^a Neill, C. P., Conditions of employments in the iron and steel industry in the United States: Senate Doc. 110, vol. 4, 1913, pp. 25-43.

^b Compiled from Senate Document 110, 62d Congress, First Session, "Conditions of employments in the iron and steel industry in the United States," by Charles P. Neill, vol. 4, pp. 25-43.

^c These figures represent approximately 75 per cent of the industry, and are complete for 155 plants.

SERIOUS AND SLIGHT INJURIES.

The definition of an accident, a fundamental consideration, varies among mining companies as well as in the laws of the various States requiring reports. One operator or State may require a detailed report of any casualty, however slight, that delays the worker, or that draws blood; another may not consider an accident worthy of record that does not come to the attention of the foreman or shift boss. One of the large mining companies defines an accident as follows:

An accident is any internal or external injury, feigned or actual, involving any or no loss of time, resulting directly or indirectly from our operations, regardless of cause or degree of severity, occurring to the person of an employee while going to, coming from, or actually engaged on company work or property. It also includes an accident to any nonemployee resulting directly from any of our operations.

Many companies have so increased the list of reportable accidents that statistics seem to show a far greater number of casualties now than in the past. However, it is essential that every company have a record of any accident that may result in a serious injury for which compensation may be claimed; and also to prevent unjust claims arising, as then any case can be traced to its origin and the records will show full details. As many companies require a record of all injuries it is not as easy as it formerly was to substantiate unjust claims. This minute and detailed classification is especially notable in the Lake Superior district.

The distinction made in this paper between a serious and a slight injury is entirely arbitrary. A line had to be drawn at some definite point, and hence a serious accident is considered in this report as one that would disable a man and keep him from duty 20 days or more. This class includes such injuries as broken arms and legs, loss of eye, and severe cuts and bruises.

A slight injury is considered as one that involves a loss of time of not less than 1 day nor more than 20 days. Under this class may be placed such injuries as cuts, sprains, mashed fingers, bruises, dirt in eye, slight burns, effect of powder smoke, etc. Of course any slight injury may become infected and thus result in a serious accident as defined above.

In the tabulation of the serious and slight injuries, it has been found advisable to change the grouping slightly from that used in 1911.^a This change is due to the irregular manner in which these classes of injuries are reported. In some States there is no law whatever requiring a record of injuries or a report to any industrial or insurance board, commissioner of labor, or inspector, whereas in other States strict laws govern this feature. In those States where

^a Fay, A. H., Metal-mine accidents in the United States during the calendar year 1911: Tech. Paper 40, Bureau of Mines, 1913.

there are such laws the majority of the mining companies keep excellent records from which reports for the Bureau of Mines are compiled, and it is in these States that the injury ratio in many cases is very high. Unless all States report on the same basis, just comparisons can not be made.

In making comparisons of serious and slight injuries in the various States, it is necessary to take into account some of the features of the law governing the report of such injuries. One State may report fatal and serious injuries only, but without defining a "serious injury," and require no reports for slight injuries. One State may require reports of all fatalities and injuries incapacitating the employee for one week; others may specify the reporting of accidents causing disabilities ranging from 1 to 14 days. Thus one State may report, perhaps, only 25 per cent as many injuries as some other States in which the mining industry is of no greater magnitude. At first glance it would appear that mining is much safer in the former State than in any of the latter, but this, however, is a wrong conclusion. The major difference is largely a matter of recording and reporting the serious and slight injuries. The mining risk or hazard in one State does not vary much from that in any other, especially when the same tonnage of material is handled and an equal number of men employed.

The data in Tables 11, 12, and 13, in which the number of serious and slight injuries is given, have been arranged so that the data for the different States are grouped according to the State laws relating to inspection or industrial-accident compensation.

Class A includes the principal mining States in which there were in operation during a part or all of 1912 certain laws relating to the recording and reporting of mine-accident statistics. These States are as follows: Arizona, California, Colorado, Idaho, Michigan, Minnesota, Missouri, Montana, Nevada, New Jersey, New York, Oregon, South Dakota, Washington, and Wisconsin.

Class B includes the other mining States which during 1912 had no laws regarding compensation for injuries or requiring reports or records of serious and slight injuries. It also includes those States in which only a little mining is done and in which there are laws relating to industrial accidents.

Though the laws already in force are not uniform, they are a step in the right direction and, it is hoped, will eventually result in a uniform method of keeping mine-accident statistics.

ABSTRACTS OF LAWS RELATING TO REPORTING OF ACCIDENTS.

Some features of the laws relating to the reporting of accidents are abstracted in the following pages. The laws are discussed by States.

ARIZONA.

The Legislature of Arizona, by an act^a approved June 8, 1912, and effective September 1, 1912, provided for compulsory compensation for injuries to workmen received when engaged in dangerous and hazardous services. The act includes, among other industries, mines, tunnels, quarries, and mills. Although it does not require the employer to report accidents to any officer, board, or body, it does provide as follows:

SECTION 10. Every workman seeking compensation under the provisions of this act, where the same is not fatal or does not render him incompetent to give the notice, shall, within two weeks after the date of the accident, give notice in writing to the employer, or his representative employing such workman, or to the foreman or other employee of the employer under whom he was working at the time of the accident, and before the workman voluntarily left the service of the employer and during his disability. The notice shall state (1) the name and address of such workman, (2) the date and place of accident, (3) and state in simple words the cause thereof, (4) the nature and degree of the injury sustained, (5) and that compensation is claimed under this act. * * * It shall be the duty of any one giving a notice as in this section provided to mail a duplicate copy to the attorney general of this State.

Although this act does not specifically state that employers shall keep records and render reports of accidents at their mines, quarries, or other plants, yet, as a matter of protection, the majority of them will undoubtedly keep records of such injuries. Section 13 of the mining law of 1912 states that all fatal and serious accidents shall be reported immediately in writing to the State mine inspector. Failure to do so shall be deemed a misdemeanor.

CALIFORNIA.

The legislature of California passed an act^b approved April 8, 1911, providing compensation for accidental injuries, and established an industrial-accident board to aid in the administration of the act. The act is elective for all employments, except for State and local governments, for which it is compulsory. The employee also may elect not to be subject to the act by notifying his employer in writing. No provisions were made whereby the employer is required to make a report to the industrial-accident board.

On January 2, 1912, additional powers were given to the industrial board as follows:^c

SECTION 1. It shall be the duty of the industrial accident board to collect and compile statistics in regard to industrial accidents happening in this State resulting in personal injury * * *

^a Laws of Arizona, 1912, special session, ch. 14, p. 23.

^b Statutes of California, 1911, p. 796.

^c Statutes and amendments to the codes, extra session 1911, p. 166.

SEC. 2. It shall be the duty of every employer of labor and of persons, firms, associations, or corporations insuring against liability of employers for damages or compensation for personal injuries to employees by industrial accidents to furnish to the industrial accident board, upon the written request of a member thereof or an examiner appointed thereby, any and all information in his or its possession or under his or its control, pertinent to any of the matters referred to in the preceding section of this act * * *.

SEC. 4. Any person, firm, corporation, agent, or officer of a firm or corporation that knowingly violates or omits to comply with any of the provisions of this act shall be guilty of a misdemeanor for each and every offense, and shall be, upon conviction thereof, punishable by a fine of not more than \$10.

COLORADO.

The inspection laws of Colorado apply to all mines employing two or more men and require that the operator render to the Bureau of Mines of the State of Colorado reports of all fatal accidents, as well as injuries, resulting in the loss of two days' time.

The Legislature of Colorado on April 1, 1911, authorized the appointment of a commission to inquire into the subject of workman's compensation and the operation of such laws elsewhere.

IDAHO.

The inspection laws of Idaho make it the duty of every mine operator to render to the State inspector of mines a report of any serious or fatal accident and such other information as the inspector may from time to time require.

ILLINOIS.

The Legislature of Illinois passed an act^a June 28, 1913, relating to compensation of injured employees, and established an industrial board for its administration. The act covers every employer of labor, including operators of underground and surface mines and also quarries. The application of the act is elective on the part of the employer. Section 2 provides that election is presumed unless a written notice to the contrary is filed with the industrial board and notice of such declination is given the employees. The act further provides as follows:

SECTION 30. It shall be the duty of every employer within the provisions of this act to send to the industrial board in writing an immediate report of all accidental injuries arising out of or in the course of the employment and resulting in death; it shall also be the duty of every such employer to report between the 15th and the 25th of each month, to the industrial board, all accidental injuries for which compensation has been paid under this act, which injuries entail a loss to the employee of more than one week's time; and in case the injury results in permanent disability such report shall be made as soon as it is determined that such permanent disability has resulted or will result from such injury. * * *

^a Laws of the State of Illinois enacted by the forty-eighth general assembly at the regular biennial session, 1913, p. 337.

SEC. 33. Any willful neglect, refusal, or failure to do the things required to be done by any section, clause, or provision of this act, on the part of the persons herein required to do them, or any violation of any of the provisions or requirements hereof, or any attempt to obstruct or interfere with any court officer, or any other person charged with the duty of administering or enforcing the provisions of this act, shall be deemed a misdemeanor, punishable by a fine of not less than \$10 nor more than \$500 at the discretion of the court.

MARYLAND.

The Legislature of Maryland passed an act^a April 15, 1912, providing elective insurance in all employments. Under the acts of 1910,^b compulsory insurance is provided for coal mining and clay mining in two counties, accidents to be reported to the county commissioners in the county where the accident occurs and to the State commissioner of insurance.

MASSACHUSETTS.

The Legislature of Massachusetts passed an act^c July 28, 1911, establishing an elective insurance for all employments and at the same time created an industrial-accident board.

MICHIGAN.

The Legislature of Michigan at its extra session passed an act^d March 20, 1912, which became effective September 1, 1912, relating to the liability of employers for injuries or death sustained by their employees, providing compensation for the accidental injury or death of employees, and created an industrial accident board for the purpose of administering the act. This act is elective and makes the following provision for recording and reporting accidents:

SECTION 17. Every employer shall hereafter keep a record of all injuries, fatal or otherwise, received by his employees in the course of their employment. Within 10 days after the occurrence of an accident resulting in personal injury a report thereof shall be made in writing to the industrial-accident board on blanks to be procured from the board for that purpose. The said report shall contain the name and nature of the business of the employer, the location of his establishment or place of work, the name, age, sex, and occupation of the injured employee, and shall state the time, the nature and cause of the injury, and such other information as may be required by the board. Every employer who refuses or neglects to make the report required by this section shall be punished by a fine of not more than \$50 for each offense.

MINNESOTA.

The Legislature of Minnesota passed an act^e April 17, 1909, which became effective June 1, 1909, providing for the reporting of accidents to the commissioner of labor. The act provides as follows:

SECTION 1. It is hereby made the duty of every employer of labor engaged in industrial pursuits to make or cause to be made a report of any and all accidents within 30

^a Laws of 1912, ch. 837.

^b Ibid., ch. 153.

^c Acts of 1911, ch. 751.

^d Acts of the extra session of 1912, p. 20.

^e Laws of Minnesota, 1909, ch. 235, p. 277.

days after they occur to any of its, his, or their employees within the scope of their employment, of which he, it, or they have or can obtain knowledge, where the injuries are sufficient to wholly or partially incapacitate the injured from labor or service, which report shall be made in writing to the commissioner of labor of this State, giving: (a) Age, sex, and occupation of injured person; (b) occupation of employer; (c) the cause of injury; (d) the nature and extent of the injury and the probable length of disability; (e) the immediate family or dependents of the injured person; (f) the name and address of the attending physician or surgeon; (g) the wages the injured person was earning and the length of time he had been in that employment; (h) whether the injured person willfully caused the injury; (i) whether assumption of risk is claimed by the employer; (j) whether negligence of a fellow servant is claimed by the employer; (k) whether contributory negligence is claimed by the employer; (l) whether the fault of the employer or his machinery or safety appliances is admitted; (m) a statement of all expense, costs, damages, and compensation to which the employer is put on account thereof; (n) whether the employer carries indemnity or liability insurance, and if so, the amount thereof and the average pay roll in the department in which the injury occurred; (o) whether it is a case which is likely to become one of public charity.

SEC. 2. The failure to make such reports on the part of any person, copartnership, or corporation required hereby to make the same, within the time herein specified, is hereby declared to be a misdemeanor.

All indemnity, casualty, and employers' liability companies are required by law to make similar reports to the commissioner of labor.

MISSOURI.

The mining laws of Missouri provide for a bureau of mines, mining, and mine inspection, with inspectors for both coal and metal mines. The operators of lead, zinc, iron, and other mines are required to render reports to the local inspector, giving full details of all accidents resulting in fatal or serious injury. Failure to comply with the laws is punishable by a fine of not less than \$100 nor more than \$300.

MONTANA.

The inspection laws of Montana apply to all mines employing five or more men and require that the operators render reports to the inspector of mines, giving full details of all accidents resulting in fatal or serious injury.

NEVADA.

The revised (1912) laws of Nevada provide for an inspector of mines and require that each operator render a detailed report of all accidents resulting in fatal or serious injuries, together with such other information as the inspector may require. This act does not apply to any mine that is worked exclusively by the owners or lessees, no wage earners being employed.

The Legislature of Nevada, by an act ^a approved March 15, 1913, and effective July 1, 1913, provided for compensation to injured workmen in the industries of the State and created an industrial commis-

^a Statutes of Nevada, 1913, p. 137.

sion and a fund for the compensation of workmen injured in the course of employment. The State mine inspector is designated a member of this commission. The act provides that each employer may elect to come within its provisions, and election is presumed unless a written notice to the contrary is filed with the commission.

Employers are required to furnish upon request all information required by the commission to carry out the purposes of the act and to fill all blanks furnished and requested to be filled by the commission. The act makes further provisions as follows:

SECTION 33. Whenever any accident occurs to any workman it shall be the duty of the employer to at once report such accident and the injury resulting therefrom to the commission, and also to any local representative of the commission. Such report shall state: (1) The time, cause, and nature of the accident and injuries, and the probable duration of the injury resulting therefrom; (2) whether the accident arose out of or in the course of the injured person's employment; (3) any other matters the rules and regulations of the commission may prescribe.

NEW HAMPSHIRE.

The Legislature of New Hampshire established an elective compensation act^a for all dangerous employments, including mining and quarrying, under which reports are to be rendered to the commissioner of labor.

NEW YORK.

The laws of New York make the following provision^b for reporting to the commissioner of labor all accidents and injuries resulting therefrom in all mines, quarries, tunnels, etc.:

SECTION 126. Whenever loss of life or an accident causing an injury incapacitating any person for work shall occur in the operation of a mine or quarry, or in the construction or repair of a tunnel, the owner, agent, manager, lessee, contractor, subcontractor, or person in charge thereof, shall keep a correct record of all deaths, accidents, or injuries sustained by any person therein or on the premises or works, in such form as may be required by the commissioner of labor. Such record shall be open to the inspection of the commissioner of labor and a copy thereof shall be furnished to the said commissioner on demand. Within 48 hours after the accident, death, or injury a report thereof shall be made in writing to the commissioner of labor, stating as fully as possible the cause of the death or the extent and cause of the injury, and the place where the injured person has been sent, with such other or further information relative thereto as may be required by the said commissioner, who may investigate the causes thereof and require such precautions to be taken as will prevent the recurrence of similar happenings. No statement contained in any such report shall be admissible in evidence in any action arising out of the death or accident therein reported.

SEC. 135. The commissioner of labor may serve a written notice upon the owner, agent, manager, or lessee of a mine or tunnel requiring him to comply with a specified provision of this article. The commissioner of labor shall begin an action in the supreme court to enforce compliance with such provision; and upon such notice as the court directs an order may be granted, restraining the working of such mine or tunnel during such time as may be therein specified.

^a Laws of 1911.

^b Laws of New York, 1910, ch. 155.

NEW JERSEY.^a

The State of New Jersey has an elective compensation act, and the statutes require every employer, when an accident happens that prevents an employee from resuming work within two weeks thereafter, to report in writing to the commissioner of labor "the time, place, and cause of said accident as nearly as same may be fairly ascertained, and the extent of injuries received, and such other facts as the commissioner of labor may, by rule or regulation, require."

Casualty and indemnifying insurance companies are required to render complete reports to the commissioner of labor of all accidents to employees, when the injuries prevent the employees from resuming work within two weeks. If an injury does not produce death, the report required must be filed within four weeks; but if an injury produces death, the report must be filed within two weeks. The law also provides that the employee must notify the employer of any injury received, unless the employer shall have otherwise obtained knowledge of the accident and injury.

A further provision of the act is as follows:

SEC. 4. Any corporation, firm, or person violating any of the provisions of this act shall, for each offense, be liable to a penalty of \$50, to be recovered in an action of debt brought by the commissioner of labor in the name of the State of New Jersey. Each such failure to report shall be regarded as a separate offense.

OREGON.

By an act^b approved February 18, 1911, the legislature made provision for recording, reporting, and publishing industrial-accident statistics as follows:

SECTION 1. Any person, firm, or corporation employing labor, who employs more than three persons at a time, shall report to the commissioner of labor statistics and inspector of factories and workshops any and all accidents happening to any person in their employment, directly or indirectly due to said employment, and said person, firm, or corporation is required to give the name, sex, age, and the particular employment of the person so injured and explain the nature of the accident and the date and place of occurrence of the same: *Provided, however,* That no such report need be made if the person be not in any way incapacitated from immediate continuance of his duties and the services of a physician be not required.

SEC. 3. Any employer of labor who shall fail to report such accident within five days from its occurrence shall be liable to a fine of not less than \$25 and not to exceed \$500 or to imprisonment in the county jail for not less than five days nor more than six months, or both, in the discretion of the court.

An act^c of the legislature created a State industrial-accident commission and provided for an industrial-accident fund, the benefits of which are applicable to those firms or corporations that contribute

^a See Law of New Jersey, 1911, ch. 95, p. 134; also Acts of 1902, ch. 156, p. 225.

^b Laws of Oregon, 1911, ch. 102, p. 147.

^c Laws of 1913, ch. 112.

thereto. The act specifies that all persons, firms, and corporations engaged as employers in any of the hazardous occupations, including mining and quarrying, shall be subject to the provisions of this law, provided, however, that they elect to be so governed.

PENNSYLVANIA.

The Legislature of Pennsylvania (laws of 1911, p. 917), by an act approved June 14, 1911, authorized the appointment of a commission to inquire into the causes and results of industrial accidents and to devise methods for safeguarding against the same, and to inquire into the subject of fair compensation for persons killed or injured as the result thereof.

RHODE ISLAND.

The Legislature of Rhode Island passed an elective compensation act ^a for all employments in which five or more men are employed, notice of injury to be reported to the commissioner of labor within 30 days after the date of the accident.

SOUTH DAKOTA.

The South Dakota inspection laws apply to all mines except those prospects or small mines at which no labor is employed other than that of the owner or lessee. The operators are required to render reports to the inspector of mines, giving full details of all accidents resulting in fatal or serious injury. They are also required to report any other information that the inspector may from time to time require. Failure to comply with the inspection laws is punishable by a fine of not less than \$200 nor more than \$1,000.

WASHINGTON.

The Legislature of Washington passed an act ^b approved March 14, 1911, establishing an industrial-insurance department to administer a compulsory compensation law. Section 2 enumerates hazardous employments, including mines, quarries, wells, reduction works, and mills. This law provides as follows:

SEC. 14. Whenever any accident occurs to any workman it shall be the duty of the employer to at once report such accident and the injury resulting therefrom to the department, and also to any local representative of the department. Such report shall state:

1. The time, cause, and nature of the accident and injuries, and the probable duration of the injury resulting therefrom.
2. Whether the accident arose out of or in the course of the injured person's employment.
3. Any other matters the rules and regulations of the department may prescribe.

Every person who, after due notice, shall refuse or neglect to make or furnish any statement * * * shall be guilty of a misdemeanor.

^a Laws of 1912.

^b Laws of Washington, 1911, p. 346.

WEST VIRGINIA.

The Legislature of West Virginia on February 24, 1911, adopted resolutions similar to those adopted by Pennsylvania.

WISCONSIN.

The Legislature of Wisconsin on April 3, 1911, passed an act^a providing for workmen's compensation and creating an industrial commission for the purpose of administering the act, which became effective July 1, 1911.

Section 2394-35 provides that—

Every employer of four or more persons shall keep a record of all accidents causing the death or disability of any employee, which record shall show such facts in regard to the accident and the person disabled as the industrial board may require; said record to be kept in a book in such form as the industrial-accident board may prescribe.

All casualty insurance companies, mutual corporations, or benefit societies that indemnify employers against liability are required to keep records of accidents causing death or disability. All such organizations and all employers must, within the first five days of every month, and at other times if required, furnish to the industrial commission a report containing a copy of every entry made in the record book of any such indemnity company or employer. Any such indemnifying company or any such employer violating any of the provisions of the act, or neglecting or failing to furnish reports as required, must forfeit the sum of \$50 for each violation.

^a Wisconsin statutes, 1911, p. 1542.

TABLE 1.—Number of men employed and number of men killed and injured in and about the metal and miscellaneous mineral mines in the United States in the calendar years 1911 and 1912.

1912.

Kind of mine.	Number of em- ployees.			Number killed.						Number seriously injured.						Number slightly injured.						Orphans.	Widows.	
	Active operators.	Total.		Underground. ^a	Rate per 1,000 em- ployed.	On the surface.	Rate per 1,000 em- ployed.	Total, underground and surface.	Rate per 1,000 em- ployed.	Underground. ^a	Rate per 1,000 em- ployed.	On the surface.	Rate per 1,000 em- ployed.	Total, underground and surface.	Rate per 1,000 em- ployed.									
		Underground.	On the surface.																					
Copper.....	814	37,539	14,227	51,776	185	4.93	54	3.79	239	4.62	1,501	39.99	306	21.49	1,807	34.90	10,277	273.77	1,553	109.08	11,830	228.48	87	159
Gold and miscellaneous	4,137	31,322	12,822	44,144	147	4.69	29	2.26	176	3.99	515	16.44	98	7.64	613	13.89	2,796	89.27	384	29.95	3,180	72.04	71	98
Iron.....	194	26,799	18,947	45,746	136	5.07	36	1.90	172	3.76	1,288	48.06	512	27.02	1,800	39.35	6,566	245.01	2,141	113.00	8,707	190.33	84	198
Lead and zinc (Mississippi	464	10,812	3,520	14,332	48	4.44	6	1.70	54	3.77	114	10.54	33	9.38	147	10.26	1,634	151.13	215	61.08	1,849	129.01	26	62
Valley only).....	358	3,584	9,617	13,201	6	1.67	14	1.46	20	1.52	29	8.09	106	11.02	135	10.23	140	39.06	526	54.69	666	50.45	5	3
Miscellaneous mineral.....																								
Total.....	5,967	110,056	59,143	169,199	522	4.74	139	2.35	661	3.91	3,447	31.32	1,055	17.84	4,502	26.61	21,413	194.56	4,819	81.48	26,232	155.04	273	520
Average.....																								

1911.

Copper.....	396	31,557	13,136	44,693	199	6.31	39	2.97	238	5.33	1,193	37.80	133	10.12	1,326	29.67	7,603	240.93	1,413	107.57	9,016	201.73	91	195
Gold and miscellaneous metal.....	3,817	35,176	13,743	48,919	163	4.63	30	2.18	193	3.95	453	12.88	87	6.33	540	11.04	2,779	79.00	299	21.76	3,078	62.92	61	118
Iron.....	207	25,461	20,492	45,953	136	5.34	61	2.95	197	4.29	1,431	56.20	601	29.33	2,032	44.22	6,413	251.09	2,277	111.12	8,690	188.30	114	237
Lead and zinc (Mississippi Valley only).....	483	9,247	3,274	12,521	32	3.46	11	3.36	43	3.93	139	15.03	38	11.61	177	14.14	1,161	125.55	150	45.82	1,311	104.70	26	40
Miscellaneous mineral.....	329	3,182	10,711	13,893	12	3.77	12	1.12	24	1.73	47	14.77	47	4.39	94	6.77	159	49.97	154	14.38	313	22.50	5	10
Total.....	5,222	104,623	61,356	165,979	542	5.18	153	2.49	695	4.19	3,263	31.19	906	14.77	4,169	25.12	18,115	173.15	4,293	69.97	22,408	135.01	297	609
Average.....																								

* Includes shaft accidents.

TABLE 2.—*Number of men killed and injured in and about the metal mines in*
NUMBER KILLED.

Kind of mine.	Underground.									
	By fall of rock or ore from roof or wall.	By rock or ore while loading at working face.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or stope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity.	By machinery (not including locomotives or drills).
	1	2	3	4	5	6	7	8	9	10
Copper.....	87		4	21	9	16	6	1	9	
Gold and miscellaneous metal.....	49	1	1	27	7	17	2		5	
Iron.....	55	1	1	15	17	9	1	1	2	2
Lead and zinc (Mississippi Valley).....	18			9	1	1	1		3	
Miscellaneous mineral.....	3			1	1					
Total.....	212	2	6	73	35	43	10	2	19	2
Percentage of grand total killed.....	32.10	0.30	0.90	11.04	5.29	6.50	1.51	0.30	2.87	0.30
Percentage of class total killed.....	50.24	0.47	1.42	17.30	8.30	10.19	2.37	0.47	4.50	0.47

NUMBER SERIOUSLY INJURED.

Copper.....	540	124	113	46	192	103	72	89	6	20
Gold and miscellaneous metal.....	174	25	35	29	59	47	22	22		11
Iron.....	350	98	162	71	291	47	17	83	1	11
Lead and zinc (Mississippi Valley).....	31	14	3	6	27	3	2	7		4
Miscellaneous mineral.....	7			1	10	1		2		5
Total.....	1,102	261	313	153	579	201	113	203	7	51
Percentage of grand total seriously injured.....	24.48	5.80	6.95	3.40	12.86	4.46	2.51	4.51	0.16	1.13
Percentage of class total seriously injured.....	33.70	7.98	9.57	4.68	17.71	6.15	3.45	6.21	0.21	1.56

NUMBER SLIGHTLY INJURED.

Copper.....	3,200	1,487	1,072	59	950	453	469	537	13	173
Gold and miscellaneous metal.....	719	219	359	35	350	111	224	229	5	45
Iron.....	1,686	693	1,014	122	1,194	141	221	508	11	91
Lead and zinc (Mississippi Valley).....	268	439	57	20	201	34	14	117	2	105
Miscellaneous minerals.....	9	35	11	10	37	1		19	1	6
Total.....	5,882	2,873	2,543	246	2,732	740	928	1,410	32	420
Percentage of grand total slightly injured.....	22.42	10.95	9.70	0.94	10.41	2.82	3.54	5.38	0.12	1.60
Percentage of class total slightly injured.....	28.27	13.81	12.22	1.18	13.13	3.56	4.46	6.78	0.15	2.02

the United States in the calendar year 1912, giving cause of death or injury.

NUMBER KILLED.

Underground—Continued.						Shaft.						
By mine fires.	By suffocation from natural gases.	By inrush of water.	By stepping on nail.	By other causes.	Total, underground accidents.	By falling down shafts.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By skip or cage.	By other causes.	Total, shaft accidents.
11	12	13	14	15		16	17	18	19	20	21	
1	3	5		3	157	11	2	2		14	1	28
				1	114	16				10	3	33
				2	111	7	4			13	1	25
				2	35	5	4				4	13
					5	1						1
1	4	5	0	8	422	40	12	2	0	37	9	100
0.15	0.61	0.76	0.00	1.21	63.84	6.05	1.82	0.30	0.00	5.60	1.36	15.13
0.24	0.95	1.18	0.00	1.90	100.00	40.00	12.00	2.00	0.00	37.00	9.00	100.00

NUMBER SERIOUSLY INJURED.

1			7	121	1,434	17	22			26	2	67
	2	1	1	48	476	9	11	2		10	7	39
	3	2	1	91	1,228	7	13	1		33	6	60
				7	104	2	3			2	3	10
				2	28		1					1
1	5	3	9	269	3,270	35	50	3	0	71	18	177
0.02	0.11	0.07	0.20	5.97	72.63	0.78	1.11	0.07	0.00	1.57	0.40	3.93
0.03	0.15	0.09	0.28	8.23	100.00	19.77	28.25	1.70	0.00	40.11	10.17	100.00

NUMBER SLIGHTLY INJURED.

5	3	1	123	1,509	10,054	46	88			53	36	223
6	12		25	365	2,704	6	35	1	2	28	20	92
	15	6	70	560	6,362	11	78	1	1	63	50	204
			14	278	1,549	6	27	1	2	30	19	85
				11	140							0
11	30	7	232	2,723	20,809	69	228	3	5	174	125	604
0.04	0.11	0.03	0.89	10.38	79.33	0.26	0.87	0.01	0.02	0.66	0.48	2.30
0.05	0.14	0.03	1.11	13.09	100.00	11.42	37.75	0.50	0.83	28.81	20.69	100.00

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TABLE 2.—Number of men killed and injured in and about the *metal* mines in
NUMBER KILLED.

Kind of mine.	Surface.								
	By mine cars or mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By falls of persons.	By stepping on nail.	By hand tools, axes, bars, etc.	By electricity.	By machinery.	By other causes.
	22	23	24	25	26	27	28	29	30
Copper.....	1	5	.....	4	.....	.....	3	3	15
Gold and miscellaneous metal.....	3	.....	.....	.....	.....	.....	1	5	3
Iron.....	2	.....	2	2	.....	.....	1	1	1
Lead and zinc (Mississippi Valley).....	.....	.....	.....	.....	.....	.....	.....	1	4
Miscellaneous mineral.....	.....	.....	.....	.....	.....	.....	.....	1	1
Total.....	6	5	2	6	0	0	5	11	24
Percentage of grand total killed.....	0.91	0.76	0.30	0.91	0.00	0.00	0.76	1.66	3.63
Percentage of class total killed.....	10.17	8.47	3.39	10.17	0.00	0.00	8.47	18.65	40.68
									8.93
									100.00

NUMBER SERIOUSLY INJURED.

Copper.....	9	12	7	36	3	28	1	55	42	193
Gold and miscellaneous metal.....	10	3	.....	8	.....	2	3	12	23	61
Iron.....	13	11	10	40	2	31	.....	28	49	184
Lead and zinc (Mississippi Valley).....	.....	.....	2	2	1	1	.....	8	6	20
Miscellaneous mineral.....	.....	1	.....	1	.....	1	.....	1	3	7
Total.....	32	27	19	87	6	63	4	104	123	465
Percentage of grand total seriously injured.....	0.71	0.60	0.42	1.93	0.14	1.40	0.09	2.31	2.73	10.33
Percentage of class total seriously injured.....	6.88	5.81	4.09	18.71	1.29	13.55	0.86	22.36	26.45	100.00

NUMBER SLIGHTLY INJURED.

Copper.....	54	17	30	93	17	131	5	149	219	715
Gold and miscellaneous metal.....	18	3	5	24	28	49	11	43	74	255
Iron.....	43	30	49	168	45	284	9	144	225	997
Lead and zinc (Mississippi Valley).....	21	1	17	20	18	35	.....	29	68	209
Miscellaneous mineral.....	2	1	.....	1	9	.....	.....	4	17	34
Total.....	138	52	101	306	117	499	25	369	603	2,210
Percentage of grand total slightly injured.....	0.53	0.20	0.38	1.17	0.44	1.90	0.09	1.41	2.30	8.42
Percentage of class total slightly injured.....	6.24	2.35	4.57	13.85	5.29	22.58	1.13	16.70	27.29	100.00

NUMBER KILLED.

NUMBER SERIOUSLY INJURED.

NUMBER SLIGHTLY INJURED.

212	47	86	85	90	28	38	5	27	220	838	11,830
234	2	2	6	19		4		41	21	129	3,180
169	57	166	143	121	4	5	54	209	216	1,144	8,707
2				1		2		1		6	1,849
16	14	47	4	54	3	1	51	1	53	248	492
433	120	301	238	285	35	8	147	7	330	705	2,609
1.65	0.46	1.15	0.91	1.08	0.13	0.03	0.56	0.03	1.26	2.69	9.95
16.60	4.60	11.54	9.12	10.92	1.34	0.31	5.63	0.27	12.65	27.02	100.00

TABLE 3.—Number of men killed in and about all *metal* and *miscellaneous mineral*

State.	Underground.									
	By fall of rock or ore from roof or wall.	By rock or ore while loading at working face.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise or stope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity.	By machinery (not including locomotives or drills).
	1	2	3	4	5	6	7	8	9	10
Alabama.....	8	1		4	10			1		
Alaska ^a	3			5	3					
Arizona.....	29		1	6	4	5	2		5	
Arkansas.....										
California.....	9		1	8		4				
Colorado.....	15			7	2	5			1	
Connecticut.....										
Florida.....										
Georgia.....										
Idaho.....	6			5	2	4	2		2	
Illinois.....							1			
Indiana, Louisiana, and West Virginia.....										
Iowa.....										
Kansas.....				1		1				
Kentucky.....	1									
Maine.....										
Maryland.....										
Massachusetts.....										
Michigan.....	48		1	8	5	5	3		1	
Minnesota.....	8		1	1	4	4				
Missouri.....	14			7	1				3	
Montana.....	22			4	1	6	2		3	
Nevada.....	6					1		1		
New Hampshire.....					1					
New Jersey.....	6					2				
New Mexico.....	3		1	2						
New York ^b	6			3					1	1
North Carolina.....										
Ohio.....										
Oklahoma.....										
Oregon.....				1						
Pennsylvania.....					1					
South Carolina.....										
South Dakota.....	1								1	
Tennessee.....	2					1				
Texas.....										
Utah.....	16	1	1	2	1	4			2	
Vermont.....	1									
Virginia.....				1						
Washington.....				2						
Wisconsin.....	8			1		1				1
Wyoming.....				1						
Total, 1912.....	212	2	6	73	35	43	10	2	19	2
Total, 1911.....	191	(c)	10	62	20	47	14	0	15	10

^a Placer mines not included.^b Figures for number of men employed and number seriously and slightly injured for this and other tables furnished by W. W. Jones, State mine inspector, Albany, N. Y.

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Underground—Continued.						Shaft.						
By mine fires.	By suffocation from natural gases.	By inrush of water.	By stepping on nail.	By other causes.	Total, underground accidents.	By falling down shafts.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By skip or cage.	By other causes.	Total, shaft accidents.
11	12	13	14	15		16	17	18	19	20	21	
					24					2		2
					11							0
	1				53	7				2	1	10
					0							0
		2			22	3	1				1	5
					32	4	1	2		5		12
					0							0
					0							0
1					0							0
					22	1				3		4
					1							0
					0							0
					0							0
					0							0
					2							0
					1							0
					0							0
					0							0
					0							0
				1	72	5	2			9		18
					21	4	1			1	1	7
												0
					27	2	3					5
					38	2				3	1	6
	1				14					1	1	2
					1							0
					9	1				1		2
					6	1	1			2		4
					11		1			4		5
					0	1						1
					0							0
					0	1						1
					1							0
					1					1		1
					0							0
					2	1						1
					3		1			1		2
					0							0
					27	3				2		5
					1	1						1
					1	1						1
					2							0
		2			13	2	1				4	7
					4							0
1	4	5	0	8	422	40	12	2	0	37	9	100
37	8	0	(c)	10	436	57	18	4	0	(c)	27	106

^cIncluded in other causes.

TABLE 3.—Number of men killed in and about all *metal* and *miscellaneous mineral*

State.	Surface.								
	By mine cars or mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By falls of persons.	By stepping on nail.	By hand tools, axes, bars, etc.	By electricity.	By machinery.	By other causes.
	22	23	24	25	26	27	28	29	30
Alabama.....			1				1		
Alaska.....								1	a 9
Arizona.....		1					2	1	
Arkansas.....									
California.....	1	1		1				1	
Colorado.....	1						1		1
Connecticut.....	1								
Florida.....									
Georgia.....									
Idaho.....	1							1	1
Illinois.....									
Indiana, Louisiana, and West Virginia.....									
Iowa.....									
Kansas.....									
Kentucky.....									
Maine.....									
Maryland.....									
Massachusetts.....								2	1
Michigan.....	1			4					
Minnesota.....			1						
Missouri.....									b 3
Montana.....	1						1		4
Nevada.....									
New Hampshire.....									
New Jersey.....									
New Mexico.....		1							
New York.....									
North Carolina.....									1
Ohio.....									
Oklahoma.....									
Oregon.....									
Pennsylvania.....									
South Carolina.....									
South Dakota.....								2	
Tennessee.....		2						1	
Texas.....									
Utah.....				1				1	1
Vermont.....									
Virginia.....	1								
Washington.....									2
Wisconsin.....								1	1
Wyoming.....									
Total, 1912.....	6	5	2	6	0	0	5	11	24
Total, 1911.....	4	8	3	0	(d)	0	2	8	42

a Snowslide.

b Boiler explosion.

mines (except coal mines) in the different States in the calendar year 1912—Continued.

Surface (where surface mining is done).											Total, surface accidents (where surface mining is done).	Grand total.	Widows.	Orphans.
By falls or slides of rock or ore.	By explosives.	By haulage accidents.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity.	By hand tools.	By other causes.				
31	32	33	34	35	36	37	38	39	40	41				
1	2	1					1				5	33	19	37
											0	21	4	9
		1									0	67	23	42
3	1		2				1			2	1	1	1	2
								1			9	40	14	24
											1	48	21	18
1	1	1					2			1	0	0	0	0
											6	6	1	0
											0	0	0	0
											0	0	5	7
											0	1	0	0
											0	0	0	0
											0	0	0	0
											0	2	2	0
											0	1	0	0
											0	0	0	0
											0	0	0	0
											0	0	0	0
											0	0	0	0
4	2	10		1	2		1			1	0	96	52	141
							1				21	50	26	59
											1	36	18	52
1	12	4	1								0	50	15	20
1				1							18	34	18	12
		2									0	1	0	0
	1										2	13	7	14
											2	13	4	6
											1	17	(c)	(c)
											0	1	0	0
				1							0	1	1	0
											1	2	2	6
											0	1	0	0
											0	2	0	0
											0	0	0	0
2		1								2	1	6	6	10
											4	12	5	5
3	1		1								6	41	12	22
	1										0	2	0	0
											1	4	2	5
											0	4	2	0
											0	22	11	28
											0	4	2	1
16	21	20	4	3	2		6	1		7	80	661	273	520
35	16	21	1	3	1		3	(d)		6	86	695	297	600

c Not reported.

d Included in "Other causes."

TABLE 4.—Number of men killed in and about the various groups
COPPER MINES.

State.	Underground.									
	By fall of rock or ore from roof or wall.	By rock or ore while loading at working face.	By timber or hand tools.	By explosives.	By hauling accidents.	By falling down chute, winze, raise, or slope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity.	By machinery (not including locomotives or drills).
	1	2	3	4	5	6	7	8	9	10
Alaska.....				2	1					
Arizona.....	26		1	6	4	5	2		5	
California.....	2			4						
Colorado.....	1									
Idaho.....	1									
Michigan.....	22		1	3	3	2	2			
Montana.....	21			4	1	5	2		3	
Nevada.....	1							1		
New Mexico.....	2		1							
Oregon.....										
Utah.....	10		1	2		3			1	
Washington.....										
Wyoming.....										
Other States ^a	1					1				
Total.....	87		4	21	9	16	6	1	9	

GOLD AND MISCELLANEOUS METAL MINES.

Alaska ^b	3			3	2					
Arizona.....	3									
California.....	7		1	4		4				
Colorado.....	14			4	2	5			1	
Georgia.....										
Idaho.....	5			5	2	4	2		2	
Montana.....	1					1				
Nevada.....	5			4		1				
New Mexico.....	1									
North Carolina.....										
Oregon.....				1						
South Dakota.....	1								1	
Tennessee.....										
Texas.....										
Utah.....	6	1			1	1			1	
Virginia.....				1						
Washington.....				2						
Wyoming.....										
Other States ^c	3					1				
Total.....	49	1	1	27	7	17	2		5	

^a Includes Maryland, New Jersey, North Carolina, Pennsylvania, South Dakota, Tennessee, Vermont, and Virginia.

^b Does not include placer mines.

of mines (by causes) in the United States in the calendar year 1912.

COPPER MINES.

Underground—Continued.						Shaft.						
By mine fires.	By suffocation from natural gases.	By inrush of water.	By stepping on nail.	By other causes.	Total, underground accidents.	By falling down shafts.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By skip or cage.	By other causes.	Total, shaft accidents.
11	12	13	14	15		16	17	18	19	20	21	
.....	1	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	0
.....					50	4	.....	.....	.....	2	.....	6
.....					6	.....	1	.....	.....	.....	.....	1
.....					1	.....	.....	.....	.....	.....	.....	1
.....					1	.....	.....	.....	.....	.....	.....	0
.....					33	3	.....	.....	.....	5	.....	8
.....					36	2	.....	.....	.....	3	1	6
.....					2	.....	.....	.....	.....	.....	.....	0
.....					3	.....	1	.....	.....	1	.....	2
.....					0	.....	.....	.....	.....	.....	.....	0
.....					17	1	.....	.....	.....	2	.....	3
.....					0	.....	.....	.....	.....	.....	.....	0
.....				3	3	.....	.....	.....	.....	.....	.....	0
.....					2	.....	.....	.....	.....	1	.....	0
.....	1	.....	.....	3	157	11	2	.....	.....	14	1	28

GOLD AND MISCELLANEOUS METAL MINES.

.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	0
.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	1	4
.....	.....	.....	.....	.....	16	3	.....	.....	.....	.....	.....	4
.....	2	.....	.....	.....	31	3	1	2	.....	5	.....	11
.....	.....	.....	.....	.....	0	.....	.....	.....	.....	.....	.....	0
1	.....	.....	.....	.....	21	1	.....	.....	.....	3	.....	4
.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	0
.....	1	.....	.....	1	12	.....	.....	.....	.....	.....	1	2
.....	.....	.....	.....	.....	1	1	.....	.....	.....	1	.....	2
.....	.....	.....	.....	.....	0	1	.....	.....	.....	.....	.....	1
.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	0
.....	.....	.....	.....	.....	2	1	.....	.....	.....	.....	.....	1
.....	.....	.....	.....	.....	0	.....	1	.....	.....	.....	.....	1
.....	.....	.....	.....	.....	0	.....	.....	.....	.....	.....	.....	0
.....	.....	.....	.....	.....	10	2	.....	.....	.....	.....	.....	2
.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	1
.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	0
.....	.....	.....	.....	.....	0	.....	.....	.....	.....	.....	.....	0
.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	0
1	3	.....	.....	1	114	16	2	2	.....	10	3	33

* Includes Alabama, Arkansas, Maryland, Massachusetts, New Jersey, New York, and South Carolina.

TABLE 4.—Number of men killed in, and about the various groups

COPPER MINES.

State.	Surface.								
	By mine cars or mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By falls of persons.	By stepping on nail.	By hand tools, axes, bars, etc.	By electricity.	By machinery.	By other causes.
	22	23	24	25	26	27	28	29	30
Alaska.....									9
Arizona.....		1					2	1	4
California.....		1		1					2
Colorado.....									0
Idaho.....									0
Michigan.....				2				1	3
Montana.....	1						1		6
Nevada.....									0
New Mexico.....		1							1
Oregon.....									0
Utah.....				1					2
Washington.....									1
Wyoming.....									1
Other States ^a		2						1	3
Total.....	1	5		4			3	3	31

GOLD AND MISCELLANEOUS METAL MINES.

Alaska ^b								1	1
Arizona.....									0
California.....	1							1	2
Colorado.....	1						1		3
Georgia.....									0
Idaho.....	1							1	3
Montana.....									0
Nevada.....									0
New Mexico.....									0
North Carolina.....									0
Oregon.....									0
South Dakota.....								2	2
Tennessee.....									0
Texas.....									0
Utah.....									0
Virginia.....									0
Washington.....									1
Wyoming.....									0
Other States ^c									0
Total.....	3						1	5	12

^a Includes Maryland, New Jersey, North Carolina, Pennsylvania, South Dakota, Tennessee, Vermont, and Virginia.

^b Does not include placer mines.

of mines (by causes) in the United States in the calendar year 1912—Continued.

COPPER MINES.

Surface (where surface mining is done).											
By falls or slides of rock or ore.	By explosives.	By haulage accidents.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity.	By hand tools.	By other causes.	Total surface accidents (where surface mining is done).
31	32	33	34	35	36	37	38	39	40	41	
.....											0
.....											12
.....											60
.....											9
.....											2
.....											1
.....											44
.....											48
1	12	2	1	.....	.....	.....	.....	.....	.....	.....	18
.....		2	.....	.....	.....	.....	.....	.....	.....	.....	8
.....											0
2	1	.....	1	.....	.....	.....	.....	.....	.....	1	27
.....											1
.....											3
.....											6
3	13	4	2	.....	.....	.....	.....	.....	.....	1	23
.....											239

GOLD AND MISCELLANEOUS METAL MINES.

.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	9
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	7
3	1	.....	2	.....	.....	.....	1	.....	.....	2	9	31
.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	0
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	28
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	2
.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	2	16
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	3
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	6
1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	0
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	12
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	3
1	.....	1	.....	1	.....	.....	.....	.....	.....	.....	0	7
5	1	4	2	1	.....	.....	1	1	.....	2	17	176

* Includes Alabama, Arkansas, Maryland, Massachusetts, New Jersey, New York, and South Carolina.

TABLE 4.—*Number of men killed in and about the various groups*

IRON MINES.

State.	Underground.									
	By fall of rock or ore from roof or wall.	By rock or ore while loading at working face.	By timber or hand tools.	By explosives.	By hauling accidents.	By falling down chute, winze, raise, or stope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity.	By machinery (not including locomotives or drills).
	1	2	3	4	5	6	7	8	9	10
Alabama.....	8	1		4	10			1		
Michigan.....	26			5	2	3	1		1	
Minnesota.....	8		1	1	4					
Missouri.....										
New Jersey.....	3					1				
New York.....	4			2					1	1
Pennsylvania.....					1					
Tennessee.....	1									
Virginia.....										
Wisconsin.....	5					1				1
Other Eastern States ^a										
Western States ^b				3						
Total.....	55	1	1	15	17	9	1	1	2	2

LEAD AND ZINC MINES.^c

Arkansas.....										
Illinois.....							1			
Iowa.....										
Kansas.....				1		1				
Kentucky.....	1									
Missouri.....	14			7	1				3	
Oklahoma.....										
Wisconsin.....	3			1						
Total.....	18			9	1	1	1		3	

MISCELLANEOUS MINERAL MINES.

All States.....	3			1	1					
Grand total.....	212	2	6	73	35	43	10	2	19	2

^a Includes Arkansas, Connecticut, Georgia, Kentucky, Massachusetts, Maryland, North Carolina, Ohio, and West Virginia.

of mines (by causes) in the United States in the calendar year 1912—Continued.

IRON MINES.

Underground—Continued.						Shaft.						
By mine fires.	By suffocation from natural gases.	By inrush of water.	By stepping on nail.	By other causes.	Total, underground accidents.	By falling down shafts.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By skip or cage.	By other causes.	Total, shaft accidents.
11	12	13	14	15		16	17	18	19	20	21	
.....				1	24	.....	2	.....	.....	2	.....	2
.....					39	.....	.....	.....	.....	4	.....	8
.....		3	.....	.....	21	.....	4	1	.....	1	1	7
.....					0	.....	.....	.....	.....	.....	.....	0
.....				1	5	.....	1	.....	.....	1	.....	2
.....					8	.....	.....	1	.....	4	.....	5
.....					1	.....	.....	.....	.....	1	.....	1
.....					1	.....	.....	.....	.....	.....	.....	0
.....					0	.....	.....	.....	.....	.....	.....	0
.....		2	.....	.....	9	.....	.....	.....	.....	.....	.....	0
.....					0	.....	.....	.....	.....	.....	.....	0
.....					3	.....	.....	.....	.....	.....	.....	0
.....		5	.....	2	111	7	4	.....	.....	13	1	25

LEAD AND ZINC MINES.^c

.....	.....	.....	.....	.....	0	.....	.....	.....	.....	.....	.....	0
.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	0
.....	.....	.....	.....	.....	0	.....	.....	.....	.....	.....	.....	0
.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	0
.....	.....	.....	.....	2	27	.....	2	3	.....	.....	.....	5
.....	.....	.....	.....	.....	0	.....	1	.....	.....	.....	.....	1
.....	.....	.....	.....	.....	4	.....	2	1	.....	.....	4	7
.....	.....	.....	.....	2	35	5	4	.....	.....	.....	4	13

MISCELLANEOUS MINERAL MINES.

.....	.....	.....	.....	.....	5	1	.....	.....	.....	.....	.....	1
1	4	5	0	8	422	40	12	2	0	37	9	100

^b Includes California, Colorado, Idaho, Montana, New Mexico, Nevada, Utah, Washington, and Wyoming.

^c Mississippi Valley only.

TABLE 4.—*Number of men killed in and about the various groups*

IRON MINES.

State.	Surface.								
	By mine cars or mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By falls of persons.	By stepping on nail.	By hand tools, axes, bars, etc.	By electricity.	By machinery.	By other causes.
	22	23	24	25	26	27	28	29	30
Alabama.....			1				1		
Michigan.....	1			2				1	1
Minnesota.....			1						
Missouri.....									
New Jersey.....									
New York.....									
Pennsylvania.....									
Tennessee.....									
Virginia.....	1								
Wisconsin.....									
Other Eastern States ^a									
Western States ^b									
Total.....	2		2	2			1	1	1

LEAD AND ZINC MINES. ^c

Arkansas.....									
Illinois.....									
Iowa.....									
Kansas.....									
Kentucky.....									
Missouri.....									
Oklahoma.....									
Wisconsin.....									
Total.....								1	4

MISCELLANEOUS MINERAL MINES.

All States.....								1	1
Grand total.....	6	5	2	6	0	0	5	11	24

^a Includes Arkansas, Connecticut, Georgia, Kentucky, Massachusetts, Maryland, North Carolina, Ohio, and West Virginia.

IRON MINES.

Surface (where surface mining is done).												
By falls or slides of rock or ore.	By explosives.	By haulage accidents.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity.	By hand tools.	By other causes.	Total, surface accidents (where surface mining is done).	Grand total.
31	32	33	34	35	36	37	38	39	40	41		
1	1	1					1				4	32
4	2	10		1	2		1			1	0	52
											21	50
											0	0
	1										0	7
											1	14
	1										0	2
											0	1
											0	2
											0	9
											0	0
											0	3
5	5	11		1	2		2			1	27	172

										0	0
										0	1
										0	0
										0	2
										0	1
										0	1
							1			1	36
										0	1
										0	13
							1			1	54

3	2	1		1			2			3	12	20
16	21	20	4	3	2	0	6	1	0	7	80	661

^c Mississippi Valley only.

TABLE 5.—Number of men employed, number of days worked, and number of men killed per 1,000 employed in and about all metal and miscellaneous mineral mines in the different States in the calendar year 1912.

State.	Number of active operators.	Number of employees.			Average number of days worked.	Number killed					Widows.	Orphans.
		Under-ground.	On the surface.	Total.		Under-ground. ^a	Per 1,000 employed.	On the surface.	Per 1,000 employed.	Total.		
Alabama.....	20	2,770	2,057	4,827	1,302,041	26	9.39	7	3.40	33	19	37
Alaska ^b	30	1,562	352	1,914	652,873	11	7.04	10	28.41	21	10.97	9
Arizona.....	479	11,575	4,016	15,591	4,701,702	63	5.44	4	1.00	67	23	42
Arkansas.....	11	379	25	404	103,735	257	.....	1	40.00	1	2.48	1
California.....	1,048	6,167	4,145	10,312	2,845,815	27	4.38	13	3.14	40	14	24
Colorado.....	624	6,778	2,114	8,892	2,656,168	44	6.49	4	1.89	48	21	18
Connecticut.....	5	158	101	259	76,930	297	.....	0	.....	0	0	0
Florida.....	24	240	4,221	4,461	1,320,480	296	.....	6	1.42	6	1	0
Georgia.....	29	231	284	515	112,081	218	.....	3	1.47	29	0	0
Idaho.....	639	4,430	1,799	6,229	1,692,351	26	5.87	3	.....	1	5	7
Illinois.....	8	326	114	440	1,132,658	301	3.07	0	.....	1	0	0
Indiana, Louisiana, and West Virginia.....	2	.....	591	591	214,065	362	.....	0	.....	0	0	0
Iowa.....	12	184	16	200	48,753	244	.....	0	.....	0	0	0
Kansas.....	50	613	218	831	194,238	234	3.26	0	.....	2	2	0
Kentucky.....	14	106	354	460	85,873	187	9.43	0	.....	1	0	0*
Maine.....	4	.....	72	72	16,230	225	.....	0	.....	0	0	0
Maryland.....	19	62	267	329	89,136	271	.....	0	.....	0	0	0
Massachusetts.....	4	46	12	58	15,100	260	.....	0	.....	0	0	0
Michigan.....	79	21,427	8,042	29,469	8,946,517	88	4.11	8	0.99	96	52	141
Minnesota.....	43	8,528	8,031	16,559	4,760,330	287	3.28	22	2.74	50	26	69
Missouri.....	318	8,531	2,872	11,403	3,046,934	267	3.75	4	1.39	36	18	52
Montana.....	405	10,403	2,937	13,340	3,979,041	298	4.23	6	2.04	50	15	20
Nevada.....	554	5,145	2,402	7,547	2,226,733	16	3.11	18	7.49	34	18	12
New Hampshire.....	7	17	73	90	16,804	187	58.82	0	.....	1	0	0
New Jersey.....	10	1,266	367	1,633	460,997	282	8.69	2	5.45	13	7	14
New Mexico.....	163	1,289	1,213	2,502	669,707	268	7.76	3	5.20	13	4	6
New York.....	39	1,923	787	2,710	789,982	292	8.32	1	1.27	17	7	0
North Carolina.....	70	729	339	1,068	215,194	201	1.37	0	.....	1	0	0
Ohio.....	7	262	48	310	76,397	246	.....	1	20.83	1	1	0
Oklahoma.....	30	315	226	541	113,041	209	3.17	1	4.42	2	2	6
Oregon.....	260	595	457	1,052	198,906	189	1.68	0	.....	1	0	0
Pennsylvania.....	38	104	658	762	191,254	251	19.23	0	.....	2	0	0
South Carolina.....	7	40	1,001	1,041	286,514	275	.....	0	.....	0	0	0
South Dakota.....	63	1,641	3,322	4,963	589,427	300	1.83	3	9.32	6	6	10
Tennessee.....	36	1,136	2,344	3,480	881,291	253	4.40	7	2.99	12	5	5
Texas.....	8	226	160	386	106,940	277	.....	0	.....	0	0	0
Utah.....	336	5,796	2,662	8,458	2,555,037	392	5.52	9	3.38	41	12	22

Vermont.....	11	90	91	181	45,325	250	2	22.22	0	.....	2	11.05	0	9
Virginia.....	33	1,068	1,448	2,516	689,890	274	2	1.87	2	1.38	4	1.59	2	0
Washington.....	277	858	449	1,307	196,807	151	2	2.33	2	4.45	4	2.06	2	0
Wisconsin.....	77	2,772	1,062	3,834	1,039,400	271	20	7.22	2	1.88	22	5.74	11	28
Wyoming.....	74	268	394	662	155,903	236	4	14.83	0	.....	4	6.04	2	1
Total, 1912.....	5,967	110,056	59,143	169,199	48,498,510	287	522	4.74	139	2.35	661	3.91	273	520
Total, 1911.....	5,232	104,623	61,356	165,979	46,826,573	282	542	5.18	153	2.49	695	4.19	297	600

^a Includes those killed in shaft accidents.

^b Placer mines not included. Snow slide killed 9 men.

^c Fatalities and employees reported by W. W. Jones, State mine inspector, Albany, N. Y. Segregation of underground and surface employees estimated from returns for 1911.

^d Not reported.

TABLE 6.—Number of men employed, number of days worked, and number of men killed per 1,000 employed in and about the copper mines in the United States in the calendar year 1912.

State.	Num-ber of active opera-tors.	Number of employees.			Days' work done.	Average number of days worked.	Number killed.					Wid-ows.	Or-phans.	
		Under-ground, surface.	On the surface.	Total.			Under-ground. ^a	Per 1,000 em-plied.	On the surface.	Per 1,000 em-plied.	Total.			Per 1,000 em-plied.
Alaska.....	22	259	174	433	138,003	319	3	11.58	9	51.72	12	27.71	1	2
Arizona.....	206	10,146	3,421	13,567	4,212,691	311	56	5.32	4	1.17	60	4.42	21	37
California.....	44	683	372	1,055	308,081	329	7	10.10	2	5.38	9	8.45	4	8
Colorado.....	24	201	58	259	84,038	324	2	9.95	0	0.00	2	7.72	1	1
Idaho.....	65	384	127	511	114,016	224	1	2.60	0	0.00	1	1.96	0	0
Illinois.....	37	11,183	3,710	14,893	4,608,579	309	41	3.67	3	0.81	44	2.95	25	73
Michigan.....	68	8,808	2,694	11,502	3,405,570	312	42	4.77	6	2.87	48	4.40	14	19
Minnesota.....	74	1,104	982	2,086	690,889	317	2	-1.81	16	16.29	18	8.63	9	0
Nevada.....	41	537	730	1,267	375,746	297	5	9.31	3	4.11	8	6.31	3	6
New Mexico.....	26	70	32	102	16,470	161	0	0.00	0	0.00	0	0.00	0	0
Oregon.....	94	318	2,053	5,240	1,592,965	304	20	6.28	7	3.41	27	5.15	5	12
Utah.....	79	348	128	476	64,196	135	0	0.00	1	7.81	1	2.10	1	0
Washington.....	23	86	36	142	27,667	195	3	34.88	0	0.00	3	21.13	2	1
Wyoming.....	10	533	300	833	221,709	296	3	5.63	3	10.00	6	7.20	1	0
Other States ^b														
Total, 1912.....	814	37,539	14,237	51,776	15,831,250	306	185	4.93	54	3.79	239	4.62	87	159
Total, 1911.....	396	31,557	13,136	44,693	13,774,325	308	199	6.31	39	2.97	238	5.33	91	195

^a Includes those killed in shaft accidents.

^b Includes Maryland, North Carolina, Pennsylvania, South Dakota, Tennessee, Vermont, and Virginia.

TABLE 7.—*Number of men employed, number of days worked, and number of men killed per 1,000 employed in and about the gold and miscellaneous metal mines in the United States in the calendar year 1912.*

State.	Num-ber of ac-tive op-er-a-tors.	Number of employees.			Days' work done.	Average number of days worked.	Number killed.					Wid-ows.	Or-phans.
		Under-ground.	On the surface.	Total.			Under-ground. ^a	Per 1,000 em-ployed.	On the surface.	Per 1,000 em-ployed.	Total.		
Alaska ^b	6	1,274	166	1,440	499,945	347	8	6.28	1	6.02	9	3	7
Arizona.....	270	1,428	587	2,015	455,314	242	50	4.40	0	0.07	50	2	5
California.....	520	5,434	3,078	8,512	2,171,870	275	20	3.70	11	3.07	31	10	16
Colorado.....	587	6,461	2,718	9,179	2,543,104	298	42	6.40	4	1.98	46	20	17
Georgia.....	15	4,001	98	4,099	83,949	182	0	0.00	0	0.00	0	0	0
Idaho.....	592	1,659	5,665	7,324	1,565,325	277	25	6.25	3	1.81	28	5	7
Montana.....	325	1,520	1,843	3,363	552,167	234	2	1.28	0	0.00	2	0	1
Nevada.....	472	3,723	1,197	4,920	1,356,625	288	14	3.98	2	1.67	16	9	12
New Mexico.....	111	152	77	229	240,754	231	3	4.15	0	0.00	3	0	0
North Carolina.....	233	524	425	949	48,619	212	1	6.58	0	0.00	1	0	0
Oregon.....	57	1,619	296	1,915	182,416	192	1	1.91	0	0.00	1	0	0
South Dakota.....	3	136	97	233	578,148	302	3	1.82	3	10.31	6	6	10
Tennessee.....	3	220	60	280	65,124	280	1	7.35	1	10.31	2	2	2
Texas.....	228	2,500	526	3,026	88,580	316	0	0.00	0	0.00	0	0	0
Utah.....	11	281	398	679	907,086	300	12	4.80	0	0.00	12	6	9
Virginia.....	195	508	315	823	191,847	283	2	7.12	0	0.00	2	2	5
Washington.....	43	80	82	162	132,163	161	2	3.04	1	3.17	3	1	0
Wyoming.....	12	685	81	766	27,627	171	0	0.00	0	0.00	0	0	0
Other States ^c					222,088	290	4	5.84	3	37.04	7	4	8
Total, 1912.....	4,137	31,322	12,822	44,144	12,229,761	277	147	4.69	29	2.26	176	71	98
Total, 1911.....	3,817	33,176	13,743	46,919	13,512,633	276	163	4.63	30	2.18	193	61	118

^a Includes those killed in shaft accidents.

^b Placer mines not included.

^c Includes Alabama, Arkansas, Maryland, New Jersey, New York, and South Carolina.

TABLE 8.—*Number of men employed, number of days worked, and number of men killed per 1,000 employed in and about the iron mines in the United States in the calendar year 1912.*

State.	Num-ber of active opera-tors.	Number of employees.			Days' work done.	Average number of days worked.	Number killed.					Wid-ows.	Or-phan-s.
		Under-ground.	On the surface.	Total.			Under-ground. ^a	Per 1,000 em-ployed.	On the surface.	Per 1,000 em-ployed.	Total.	Per 1,000 em-ployed.	
Alabama.....	16	2,719	2,037	4,756	1,285,396	270	26	9.56	6	2.95	32	6.73	37
Michigan.....	35	10,098	4,280	14,378	4,284,832	298	47	4.65	5	1.17	52	3.62	68
Minnesota.....	43	8,528	8,031	16,559	4,760,330	287	28	3.28	22	2.74	50	3.02	59
Missouri.....	7	20	172	192	42,205	220	7	0.00	0	0.00	7	0.00	0
New Jersey.....	7	991	344	1,335	371,972	279	7	7.06	0	0.00	7	5.24	8
New York.....	10	1,160	593	1,753	527,653	301	13	11.21	1	1.69	14	7.94	0
Pennsylvania.....	13	64	399	463	131,843	285	2	31.25	0	0.00	2	4.32	0
Tennessee.....	12	380	679	1,059	218,841	207	1	2.63	0	0.00	1	0.94	0
Virginia.....	6	565	936	1,501	405,720	274	0	0.00	2	2.14	2	1.33	4
Wisconsin.....	11	1,706	632	2,338	639,934	274	9	5.28	0	0.00	9	3.85	0
Other Eastern States ^b	13	360	437	797	195,535	245	0	0.00	0	0.00	0	0.00	0
Other Western States ^c	21	208	407	615	171,224	278	3	14.42	0	0.00	3	4.88	0
Total, 1912.....	194	26,799	18,947	45,746	13,035,485	285	136	5.07	36	1.90	172	3.76	198
Total, 1911.....	207	25,461	20,492	45,953	12,749,121	277	136	5.34	61	2.98	197	4.29	237

^a Includes those killed in shaft accidents.

^b Includes Arkansas, Connecticut, Georgia, Kentucky, Massachusetts, Maryland, North Carolina, Ohio, and West Virginia.

^c Includes California, Colorado, Idaho, Montana, New Mexico, Nevada, Utah, Washington, and Wyoming.

TABLE 9.—Number of men employed, number of days worked, and number of men killed per 1,000 employed in and about the lead and zinc mines (Mississippi Valley) in the United States in the calendar year 1912.

State.	Num-ber of active opera-tors.	Number of employees.			Days' work done.	Aver-age num-ber of days worked.	Number killed.						Wid-ows.	Or-phans.
		Under-ground.	On the surface.	Total.			Under-ground.	Per 1,000 em-ployed.	On the surface.	Per 1,000 em-ployed.	Total.	Per 1,000 em-ployed.		
Arkansas.....	9	74	15	89	16,175	182	0	0.00	0	0.00	0	0.00	0	0
Illinois.....	8	326	114	440	132,653	301	1	3.07	0	0.00	1	2.27	0	0
Iowa.....	7	9	5	14	1,542	217	0	0.00	0	0.00	0	0.00	0	0
Kansas.....	48	481	190	671	145,878	243	2	4.16	0	0.00	2	2.98	2	0
Kentucky.....	10	84	80	164	38,573	268	1	11.90	0	0.00	1	6.10	0	0
Missouri.....	296	8,479	2,571	11,050	2,864,671	597	32	3.72	4	1.56	36	3.26	18	52
Nebraska.....	24	305	133	438	86,191	197	1	3.28	0	0.00	1	2.28	4	4
Oklahoma.....	62	1,054	412	1,466	385,656	270	11	10.44	2	4.85	13	8.87	5	6
Wisconsin.....	464	10,812	3,520	14,332	3,782,044	265	48	4.44	6	1.70	54	3.77	26	92
Total, 1912.....	483	9,247	3,274	12,521	3,202,339	256	32	3.46	11	3.36	43	3.43	26	40
Total, 1911.....														

^a Includes those killed in shaft accidents.^b Includes fluorspar mines that produce some lead as a by-product.

TABLE 10.—Number of men employed, number of days worked, and number of men killed per 1,000 employed in and about the miscellaneous mineral mines in the United States in the calendar year 1912.

State.	Num- ber of active opera- tors.	Number of employees.			Days' work done.	Aver- age num- ber of days worked.	Number killed.					Wid- ows.	Or- phans.
		Under- ground.	On the face.	Total.			Under- ground. (a)	Per 1,000 em- ployed.	On the sur- face.	Per 1,000 em- ployed.	Total.	Per 1,000 em- ployed.	
California.....	23	70	161	231	64,639	280	0	0.00	0	0.00	0	0.00	0
Colorado.....	12	16	52	68	11,926	229	0	0.00	0	0.00	0	0.00	0
Connecticut.....	36	89	89	178	24,740	278	0	0.00	0	0.00	0	0.00	0
Florida.....	24	240	4,221	4,461	1,320,480	296	0	0.00	6	1.42	6	1.34	1
Georgia.....	12	85	148	233	61,532	264	0	0.00	0	0.00	0	0.00	0
Idaho.....	8	30	11	41	7,040	172	0	0.00	0	0.00	0	0.00	0
Iowa.....	5	175	11	186	47,211	254	0	0.00	0	0.00	0	0.00	0
Maine.....	4	.....	72	72	16,230	225	0	0.00	0	0.00	0	0.00	0
Maryland.....	14	23	178	201	52,216	260	0	0.00	0	0.00	0	0.00	0
Michigan.....	7	146	52	198	53,106	268	0	0.00	0	0.00	0	0.00	0
Missouri.....	15	32	129	161	39,758	247	0	0.00	0	0.00	0	0.00	0
Montana.....	5	487	206	693	191,594	276	0	0.00	0	0.00	0	0.00	0
Nevada.....	7	17	73	90	16,894	187	1	58.82	0	0.00	1	11.11	0
New Hampshire.....	7	25	26	51	12,977	254	0	0.00	0	0.00	0	0.00	0
New Mexico.....	26	693	163	856	231,120	270	3	4.33	0	0.00	3	3.50	0
New York.....	53	365	184	549	86,275	157	0	0.00	0	0.00	0	0.00	0
North Carolina.....	4	290	26	316	73,585	238	0	0.00	1	38.46	1	3.50	1
Ohio.....	6	10	183	193	26,850	261	0	0.00	1	10.75	1	9.71	2
Oklahoma.....	22	19	223	242	51,578	233	0	0.00	0	0.00	0	0.00	0
Pennsylvania.....	13	34	43	77	10,579	245	0	0.00	0	0.00	0	0.00	0
South Dakota.....	1	208	1,762	1,970	427,410	171	0	0.00	3	2.16	3	1.88	0
Tennessee.....	6	170	106	276	46,784	312	0	0.00	0	0.00	0	0.00	0
Texas.....	9	77	150	227	46,784	312	0	0.00	2	27.03	2	13.33	1
Utah.....	10	60	84	144	33,855	235	2	33.33	0	0.00	2	13.89	0
Vermont.....	15	216	111	327	89,983	275	0	0.00	0	0.00	0	0.00	0
Virginia.....	4	12	30	42	8,810	197	0	0.00	0	0.00	0	0.00	0
Wisconsin.....	7	13	45	58	13,309	229	0	0.00	0	0.00	0	0.00	0
Wyoming.....	4	12	13	25	584,319	297	0	0.00	1	0.59	1	0.51	0
Other States c.....	25	259	1,708	1,967	584,319	297	0	0.00	0	0.00	0	0.00	0
Total, 1912.....	358	3,584	9,617	13,201	3,619,070	274	6	1.67	14	1.46	20	1.52	3
Total, 1911.....	329	3,182	10,711	13,893	3,588,155	258	.....	.....	.....	.....	24	1.73	10

a Includes those killed in shaft accidents.

b Not reported.

c Includes Alabama, Alaska, Arizona, Arkansas, Kansas, Kentucky, Louisiana, Massachusetts, Montana, New Jersey, Oregon, South Carolina, and Washington.

TABLE 11.—Number of men seriously injured in and about all *metal* and *miscellaneous*

State.	Underground.									
	By fall of rock or ore from roof or wall.	By rock or ore while loading at working face.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or slope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity.	By machinery (not including locomotives or drills).
	1	2	3	4	5	6	7	8	9	10
<i>Class A.</i>										
Arizona.....	209	4	47	20	66	42	1	21	4	9
California.....	41	9	11	6	12	11	.....	7	1	6
Colorado.....	44	3	5	6	13	12	5	4	.....	3
Idaho.....	10	4	4	4	11	2	1	2	.....	.....
Michigan.....	338	113	102	24	104	52	65	74	.....	2
Minnesota.....	133	14	96	33	114	18	6	11	.....	9
Missouri.....	21	12	3	5	27	1	1	4	.....	1
Montana.....	66	2	7	7	34	20	12	11	.....	1
Nevada.....	53	2	11	1	9	17	2	3	.....	2
New Jersey.....	14	2	6	5	7	5	6	1	.....	.....
New York.....	10	21	.....	5	12	2	2	4	.....	1
Oregon.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Dakota.....	4	1	2	1	2	1	7	4	.....	.....
Washington.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wisconsin.....	24	2	5	3	15	4	1	2	.....	2
<i>Class B.</i>										
Alabama.....	40	48	9	9	105	3	.....	36	1	3
Alaska.....	9	1	.....	4	1	.....	.....	.....	.....	1
Arkansas.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
Connecticut.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Florida.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Georgia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Illinois.....	1	.....	.....	1	.....	1	.....	2	.....	1
Indiana, Louisiana, and West Virginia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iowa.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kansas.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....
Kentucky.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maine.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maryland.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Massachusetts.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Hampshire.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Mexico.....	3	.....	.....	.....	.....	1	.....	.....	.....	.....
North Carolina.....	2	.....	1	.....	1	.....	.....	2	.....	.....
Ohio.....	2	.....	.....	.....	2	.....	.....	1	.....	.....
Oklahoma.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pennsylvania.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Carolina.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tennessee.....	9	5	.....	4	1	5	.....	5	.....	1
Texas.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Utah.....	59	8	4	13	38	3	3	9	1	4
Vermont.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Virginia.....	5	.....	.....	2	3	1	.....	.....	.....	4
Wyoming.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total, 1912.....	1,102	261	313	153	579	201	113	203	7	51
Total, 1911.....	1,214	(a)	267	139	606	161	105	190	3	106

a Included in "Other causes."

laneous mineral mines (except coal mines) in the United States (by States) in the year 1912.

Underground—Continued.						Shaft.						
By mine fires.	By suffocation from natural gases.	By inrush of water.	By stepping on nail.	By other causes.	Total, underground accidents.	By falling down shafts.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By skip or cage.	By other causes.	Total, shaft accidents.
11	12	13	14	15		16	17	18	19	20	21	
1			6	28	458	2	1			6		9
				19	123	1	1			3		9
	1			14	110	4	2			1		9
			1	7	46	1	1			1	2	5
	3		1	115	1,005	14	18	1		28		65
				33	460	4	6			5		19
				4	79		3					5
		1		15	176	3	8			6		17
	1		1	9	116		2	2		2	1	7
				1	47	2				1		3
				2	59		1			4		5
					1							0
				1	23							0
												0
		2		4	64	1				3		4
				4	258					5		5
				2	18		2					2
					1							0
					0							0
					1							0
					0							0
				1	7	1					1	2
					0							0
					0							0
					2							0
					0							0
					0							0
					0							0
					0							0
				1	5	1	1					2
					6	1						1
				1	5							0
					1							0
					0							0
				2	32		2			4		6
					0							0
				6	148		2			2	1	5
					3							0
					15							0
					1							0
1	5	3	9	269	3,270	35	50	3	0	71	18	177
0	1	0	(a)	318	3,110	42	40	2	12	(a)	57	153

TABLE 11.—Number of men seriously injured in and about all *metal* and *miscellaneous* calendar year

State.	Surface.								
	By mine cars and mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By falls of persons.	By stepping on nail.	By hand tools, axes, bars, etc.	By electricity.	By machinery.	By other causes.
	22	23	24	25	26	27	28	29	30
<i>Class A.</i>									
Arizona.....	6	5	2	14	2	4	1	24	24
California.....	6			3		3		4	3
Colorado.....	1			3			2	2	3
Idaho.....								4	3
Michigan.....	6	5	7	31	1	21		30	39
Minnesota.....	3	6	4	16	2	13		10	16
Missouri.....			1	1					3
Montana.....	3	1	1	5		8		5	6
Nevada.....	1	2						3	2
New Jersey.....	1					2		1	2
New York.....		1		1				1	2
Oregon.....							1		1
South Dakota.....	1		1						1
Washington.....	1								1
Wisconsin.....	1					2		6	3
<i>Class B.</i>									
Alabama.....	1	2	2	4		7		2	18
Alaska.....								1	1
Arkansas.....									0
Connecticut.....									0
Florida.....		1						1	2
Georgia.....									0
Illinois.....				1	1			2	6
Indiana, Louisiana, and West Virginia.....									0
Iowa.....									0
Kansas.....			1						1
Kentucky.....									0
Maine.....									0
Maryland.....									0
Massachusetts.....									0
New Hampshire.....									0
New Mexico.....									0
North Carolina.....	2					1		2	5
Ohio.....									0
Oklahoma.....									0
Pennsylvania.....									0
South Carolina.....									0
Tennessee.....		4		4		2		4	6
Texas.....									20
Utah.....				3				2	7
Vermont.....									0
Virginia.....				1					1
Wyoming.....									0
Total, 1912.....	32	27	19	87	6	63	4	104	123
Total, 1911.....	50	15	16	(a)	(a)	(a)	1	92	182
									465
									356

a Included in "Other causes."

laneous mineral mines (except coal mines) in the United States (by States) in the 1912—Continued.

Surface (where surface mining is done).												Grand total.
By falls or slides of rock or ore.	By explosives.	By haulage accidents.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity.	By hand tools.	By other causes.	Total, surface accidents (where surface mining is done).	
31	32	33	34	35	36	37	38	39	40	41		
1	1		7	1	1		2		4	2	0	549
			1		1		1				19	167
1			1							1	3	137
1											3	61
77	28	40	31	25	1		5		1	70	3	1,213
			3		5			3	31	2	308	857
8	5	4	10	2	2					1	13	102
			1								2	224
											31	162
											0	55
											1	70
								1			2	5
											1	25
											0	3
	1	1									2	82
		2	1	1			1		1		6	287
		1			1		1			1	3	25
2	1	9	3	1		1	10	2	4	4	2	3
											0	0
	1	1		6			1		2	18	36	39
											0	0
											0	15
											29	29
											0	0
											0	0
											0	0
											0	0
											0	0
1		1	3						1	1	6	13
											1	13
											0	5
1	1	1	2		2						1	2
											6	6
2	2	2					1		1	10	10	10
										9	17	75
26	14	13	5	7			3			9	77	237
3											3	6
1		1	1	1						1	5	21
											0	1
124	54	77	70	46	13	1	25	6	45	129	590	4,502
94	41	123	64	50	10	4	46	3	(a)	115	550	4,169

TABLE 12.—Number of men slightly injured in and about all *metal* and *miscellaneous* calendar

State.	Underground.									
	By fall of rock or ore from roof or wall.	By rock or ore while loading at working face.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or slope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity.	By machinery (not including locomotives or drills).
	1	2	3	4	5	6	7	8	9	10
<i>Class A.</i>										
Arizona.....	1,406	62	544	37	371	181	12	124	12	98
California.....	138	86	67	6	58	20	7	28	2	13
Colorado.....	181	22	56	7	69	30	58	61	17	17
Idaho.....	184	47	82	2	66	20	12	52	2	1
Michigan.....	1,389	1,357	772	39	479	147	369	386	3	42
Minnesota.....	705	58	493	50	321	73	60	78	6	15
Missouri.....	213	378	45	17	174	29	11	106	1	103
Montana.....	694	14	96	5	264	156	197	119	6	6
Nevada.....	133	51	85	9	75	14	10	38	31	31
New Jersey.....	105	22	87	11	74	15	99	53	11	11
New York.....	18	118	9	15	57	.....	11	46	2	7
Oregon.....	9	4	2	.....	.....	.....	2	.....	.....	1
South Dakota.....	25	29	20	4	31	3	19	14	1	.....
Washington.....	5	.....	2	.....	2	.....	1	3	.....	2
Wisconsin.....	98	59	49	7	66	11	20	33	1	20
<i>Class B.</i>										
Alabama.....	223	394	69	17	494	2	1	185	.....	17
Alaska.....	11	5	.....	4	3	2	3	4	.....	1
Arkansas.....	.....	1	.....	.....	1	1	.....	.....	.....	.....
Connecticut.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Florida.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Georgia.....	2	1	3	.....	.....	.....	2	2	.....	.....
Illinois.....	1	.....	.....	1	6	.....	3	2	.....	.....
Indiana, Louisiana, and West Virginia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iowa.....	.....	11	2	.....	3	.....	.....	1	.....	.....
Kansas.....	3	2	1	1	2	3	.....	3	.....	.....
Kentucky.....	1	.....	2	1	.....	.....	.....	.....	1	.....
Maine.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maryland.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Massachusetts.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
New Hampshire.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....
New Mexico.....	13	.....	2	.....	.....	3	.....	1	.....	1
North Carolina.....	7	1	7	1	7	3	.....	4	.....	1
Ohio.....	1	8	.....	.....	7	.....	.....	3	.....	1
Oklahoma.....	30	6	.....	.....	3	.....	.....	1	.....	.....
Pennsylvania.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Carolina.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tennessee.....	25	57	.....	4	8	.....	.....	25	.....	4
Texas.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....
Utah.....	252	67	44	5	79	23	31	36	1	25
Vermont.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Virginia.....	9	12	3	3	7	3	.....	2	.....	3
Wyoming.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....
Total, 1912.....	5,882	2,873	2,543	246	2,732	740	928	1,410	32	420
Total, 1911.....	6,042	(a)	1,796	242	2,924	747	876	1,207	30	576

a Included in "Other causes."

neous mineral mines (except coal mines) in the United States (by States) in the year 1912.

Underground—Continued.						Shaft.						
By mine fires.	By suffocation from natural gases.	By inrush of water.	By stepping on nail.	By other causes.	Total, underground accidents.	By falling down shafts.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By skip or cage.	By other causes.	Total, shaft accidents.
11	12	13	14	15		16	17	18	19	20	21	
1	3		98	425	3,374	3	5			10	6	24
4	2		7	133	571		1			5	4	10
	6		1	80	588	1	5			3	1	10
			8	120	596		15			3	3	22
	11	4	29	1,020	6,047	45	83		1	67	44	240
	4	1	32	172	2,068	5	36			12	29	82
			13	264	1,354	5	23	1	2	23	14	68
			1	238	1,790	1	31		1	5	2	40
	2		8	26	482	5	9	1		8	6	29
			3	15	495					4		4
				21	304		2			9	5	16
				1	19							0
2					148		1					1
	2				17							0
		1	8	17	390	1	6			10	6	23
			8	121	1,531			1		4		5
				4	37		4			1		5
				2	5							0
					0							0
			1		11		1		1	1		3
				6	19		1				1	2
					17							0
				7	22	1						0
					5							1
					0							0
					0							0
					1							0
					4							0
					20							0
			1		32							0
					20							0
			1	2	43		1			1		2
					0							0
2		1	6	13	145	1	3			7	2	13
					2							0
2			7	34	606		1				2	3
					0							0
			1		43					1		1
				1	3							0
11	30	7	232	2,723	20,809	69	228	3	5	174	125	604
24	17	14	(a)	3,147	17,642	51	216	5	14	(a)	187	473

TABLE 12.—Number of men slightly injured in and about all *metal* and *miscellaneous* calendar year

State	Surface.									
	By mine cars and mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By falls of persons.	By stepping on nail.	By hand tools, axes, bars, etc.	By electricity.	By machinery.	By other causes.	Total, surface accidents.
	22	23	24	25	26	27	28	29	30	
<i>Class A.</i>										
Arizona.....	23	5	16	26	2	27	5	53	65	222
California.....	4	2	1	6	3	18	5	9	14	62
Colorado.....	7	2	4	8	15	14		7	24	81
Idaho.....	3			1		7	1	9	12	33
Michigan.....	19	11	22	95	28	141	4	107	130	557
Minnesota.....	12	5	23	72	22	113	5	66	116	434
Missouri.....	19	1	6	13	16	25		22	56	158
Montana.....	24			18	2	34	1	10	65	154
Nevada.....	2	1	3	1	2	11	3	6	15	44
New Jersey.....	3	3				5		3	1	15
New York.....	1			1	2					4
Oregon.....						1			2	3
South Dakota.....									1	1
Washington.....	1								1	2
Wisconsin.....	3	1	14	12	3	26		11	19	89
<i>Class B.</i>										
Alabama.....	6	11	12	40	4	52		21	15	161
Alaska.....	2			2		3		1	2	10
Arkansas.....										0
Connecticut.....										0
Florida.....					7			2		9
Georgia.....	1				5	2			1	9
Illinois.....				1	1	1				3
Indiana, Louisiana, and West Virginia.....										0
Iowa.....									2	0
Kansas.....				1		1			2	4
Kentucky.....									1	1
Maine.....										0
Maryland.....										0
Massachusetts.....										0
New Hampshire.....				2				1		1
New Mexico.....				1				1		3
North Carolina.....	2					4		8	1	16
Ohio.....										0
Oklahoma.....									1	1
Pennsylvania.....										0
South Carolina.....									1	1
Tennessee.....	1	7		4	4	8	1	17	49	91
Texas.....		1								1
Utah.....	2			2		2		14	7	27
Vermont.....								1	2	3
Virginia.....	3	2			1	4				10
Wyoming.....										0
Total, 1912.....	138	52	101	306	117	499	25	369	603	2,210
Total, 1911.....	135	42	100	(a)	(a)	(a)	22	289	1,048	1,636

a Included in "Other causes."

new mineral mines (except coal mines) in the United States (by States) in the 1912—Continued.

Surface (where surface mining is done.)												Grand total.
By falls or slides of rock or ore.	By explosives.	By haulage accidents.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity.	By hand tools.	By other causes.	Total, surface accidents (where surface mining is done).	
31	32	33	34	35	36	37	38	39	40	41		
14	3	3	5	1	10		7	5	1	1	50	3,670
12			2	7			1		20	13	55	698
3			4	1					2	2	9	688
1		1				1				5	8	659
149	51	113	124	113	2		41		186	204	983	6,851
3				1		1		1			6	3,567
4				5					4	1	14	1,586
10	8	8	33	7	18		14		2	7	107	1,998
2									4		6	662
3			1						2		3	520
1				1					1		6	330
		1									3	25
											1	151
5		2	4	6		3	4		7	4	35	20
												537
3	3	33	7	1	2	1	9		4	1	64	1,761
2		2		3					2	3	12	64
5											5	10
											0	0
7	2	38	4	23	2	1	34	1	29	42	183	192
									5		6	29
		5		29			11		20	154	219	24
											0	219
											0	17
		2									0	27
										1	3	9
1											0	0
											1	1
											0	1
14	4	30	32	2			9			40	131	5
1									1		2	154
											2	50
1											0	20
	1								1		2	48
									1		2	2
3	13	5	3	2	1	1	6		4	25	25	26
										28	66	315
174	34	42	15	81			9		24	169	548	0
2		1									3	3
13	1	14	3	1			2		9	3	46	1,184
											0	6
											0	100
											0	3
433	120	301	238	285	35	8	147	7	330	705	2,609	26,232
426	109	377	180	297	69	9	301	9	(a)	880	2,657	22,408

TABLE 13.—*Number of men seriously and slightly injured per 1,000 employed in and about States (by States) in*

State.	Number seriously injured.					
	Under-ground. ^a	Per 1,000 employed.	On the surface.	Per 1,000 employed.	Total.	Per 1,000 employed.
<i>Class A.</i>						
Arizona.....	467	40.35	82	20.42	549	35.21
California.....	129	20.92	38	9.17	167	16.19
Colorado.....	119	17.56	18	8.51	137	15.41
Idaho.....	51	11.51	10	5.56	61	9.79
Michigan.....	1,070	49.94	143	17.78	1,213	41.16
Minnesota.....	479	56.18	378	47.07	857	51.75
Missouri.....	84	9.85	18	6.27	102	8.95
Montana.....	193	18.55	31	10.55	224	16.79
Nevada.....	123	23.91	39	16.24	162	21.47
New Jersey.....	50	39.49	5	13.62	55	33.68
New York.....	64	33.28	6	7.62	70	25.83
Oregon.....	1	1.68	4	8.75	5	4.75
South Dakota.....	23	14.02	2	6.21	25	12.74
Washington.....			3	6.68	3	2.30
Wisconsin.....	68	24.53	14	13.18	82	21.39
<i>Class B.</i>						
Alabama.....	263	94.95	24	11.67	287	59.46
Alaska ^b	20	12.80	5	14.20	25	13.06
Arkansas.....	1	2.64	2	80.00	3	7.43
Connecticut.....	0	0.00	0	0.00	0	0.00
Florida.....	1	4.17	38	9.00	39	8.74
Georgia.....	0	0.00	0	0.00	0	0.00
Illinois.....	9	27.61	6	52.63	15	34.09
Indiana, Louisiana, and West Virginia.....	0	0.00	29	49.07	29	49.07
Iowa.....	0	0.00	0	0.00	0	0.00
Kansas.....	2	3.26	1	4.59	3	3.61
Kentucky.....	0	0.00	0	0.00	0	0.00
Maine.....	0	0.00	0	0.00	0	0.00
Maryland.....	0	0.00	0	0.00	0	0.00
Massachusetts.....	0	0.00	0	0.00	0	0.00
New Hampshire.....	0	0.00	0	0.00	0	0.00
New Mexico.....	7	5.43	6	4.95	13	5.20
North Carolina.....	7	9.60	6	17.70	13	12.17
Ohio.....	5	19.08	0	0.00	5	16.13
Oklahoma.....	1	3.17	1	4.42	2	3.70
Pennsylvania.....	0	0.00	6	9.12	6	7.87
South Carolina.....	0	0.00	10	10.00	10	9.61
Tennessee.....	38	33.45	37	15.78	75	21.55
Texas.....	0	0.00	0	0.00	0	0.00
Utah.....	153	26.40	84	31.56	237	28.02
Vermont.....	3	33.33	3	32.97	6	33.15
Virginia.....	15	14.05	6	4.14	21	8.35
Wyoming.....	1	3.73	0	0.00	1	1.51
Total, 1912.....	3,447	31.32	1,055	17.84	4,502	26.61
Total, 1911.....	3,263	31.19	906	14.77	4,169	25.12

^a Includes those injured in shaft accidents.^b Does not include placer mines.

all metal and miscellaneous mineral mines (except coal mines) in the United the calendar year 1912.

Number slightly injured.						Character of accidents that have to be reported according to State law.
Under-ground. ^a	Per 1,000 employed.	On the surface.	Per 1,000 employed.	Total.	Per 1,000 employed.	
3,398	293.56	272	67.73	3,670	235.29	All fatal and serious. Laws of 1912, sec. 16.
581	94.21	117	28.23	698	67.69	"More than one week." Laws of 1911, sec. 8.
598	88.23	90	42.57	688	77.37	"Fatal and two consecutive days." Rev. Stat., 1908, sec. 4303.
618	139.50	41	22.79	659	105.80	All fatal and serious. Rev. Code, 1908, sec. 207.
6,287	293.41	564	70.13	6,851	232.48	All injuries, fatal or otherwise. Laws of 1912, sec. 17.
2,150	252.11	1,417	176.44	3,567	215.41	"Any and all accidents." Laws of 1909, sec. 1.
1,422	166.69	164	57.10	1,586	139.09	All loss of life or serious injury. Rev. Stat., 1899, sec. 8815.
1,830	175.91	168	57.20	1,998	149.78	All fatal or serious in mines employing five or more men. Rev. Code, 1907, sec. 1719.
511	99.32	151	62.86	662	87.72	All "fatal and serious." Laws of 1912, sec. 4207-10.
499	39.41	21	57.22	520	318.43	Two weeks. Laws of 1912, chap. 156.
320	166.41	10	12.71	330	121.77	All "injuries causing incapacity." Laws of 1910, sec. 126.
19	31.93	6	12.25	25	23.76	All preventing duty and requiring physician. Laws of 1911, chap. 102, sec. 1.
149	90.80	2	6.21	151	76.92	All serious or fatal. Rev. Code, 1903, sec. 143.
17	19.81	3	6.68	20	15.30	"Any accident." Laws of 1911, sec. 14.
413	14.90	124	116.76	537	140.06	All "causing death or disability." Laws of 1911, sec. 2394-35.
1,536	554.51	225	109.38	1,761	364.82	
42	26.89	22	62.50	64	33.44	
5	13.19	5	200.00	10	24.75	
0	0.00	0	0.00	0	0.00	
0	0.00	192	45.49	192	43.04	
14	60.61	15	52.82	29	56.31	
21	64.42	3	26.32	24	54.55	
0	0.00	219	370.56	219	370.56	
17	92.39	0	0.00	17	85.00	
23	37.52	4	18.35	27	32.49	
5	47.17	4	11.30	9	19.57	
0	0.00	0	0.00	0	0.00	
0	0.00	1	3.75	1	3.04	
1	21.74	0	0.00	1	17.24	
4	235.29	1	13.70	5	55.56	
20	15.52	134	110.47	154	61.55	
32	43.90	18	53.10	50	46.82	
20	76.34	0	0.00	20	64.52	
45	142.86	3	13.27	48	88.72	
0	0.00	2	3.04	2	2.62	
0	0.00	26	25.97	26	24.98	
158	139.08	157	66.98	315	90.52	
2	8.85	1	6.25	3	7.77	
609	105.07	575	216.00	1,184	139.99	
0	0.00	6	65.93	6	33.15	
44	41.20	56	38.67	100	39.75	
3	11.19	0	0.00	3	4.53	
21,413	194.56	4,819	81.48	26,232	155.04	
18,115	173.15	4,293	69.97	22,408	135.01	

TABLE 14.—Number of mine operators reporting their mines as idle, and those reporting less than 1,000 days' work performed, as well as those reporting 1,000 or more days' work performed during 1912.

State.	Idle.					Less than 1,000 days' work done.					1,000 or more days' work done.					Grand total.				
	Copper.	Iron.	Lead and zinc.	Gold and miscel- laneous metal.	Nonmetal.	Total.	Copper.	Iron.	Lead and zinc.	Gold and miscel- laneous metal.	Nonmetal.	Total.	Copper.	Iron.	Lead and zinc.		Gold and miscel- laneous metal.	Nonmetal.	Total.	
Alabama.....	2	31	26	2	11	70	6			1		1	16			1	2	19	90	
Alaska.....	83	1		127	4	215	100			190	2	292	106			80	2	24	32	
Arizona.....						5			6			6					1	187	694	
Arkansas.....	24	1		485	46	556	29			708	16	753	15	1	3	272	7	8	16	
California.....	20	3		349	10	382	14	1		290	7	312	10			297	5	312	1,604	
Colorado.....						4								1				9	1,006	
Connecticut.....						8														
Florida.....	15			27	11	53		1		6	1	8					24	32	32	
Georgia.....				215	5	236	48	2		449	5	504	18	1		9	11	21	82	
Idaho.....	16	0	8		8	16			1			1			7	113	3	135	876	
Illinois.....																			24	
Indiana.....																				
Louisiana.....																				
and West Virginia.....		1			1	2								1				2	4	
Iowa.....			11			12			7		1	8					4	24	24	
Kansas.....			31		1	32			19			19			29		2	31	82	
Kentucky.....		2				15								1	10		3	14	29	
Maine.....						6						1						3	10	
Maryland.....						8						5		1				3	10	
Massachusetts.....		7				15						5		3		1		9	34	
Michigan.....						9						1						14	34	
Minnesota.....	22	10				35	2					4		35			5	2	13	
Mississippi.....	1	9				11								43				75	114	
Missouri.....						1												54	54	
Montana.....						259		2	75		8	85		5	221		7	233	547	
Nebraska.....	39	24	188		17	219	43			250	1	294	25	1		85		111	624	
Nevada.....	21	1			2	211	39	2		296	2	339	35	1		176	3	215	765	
New Hampshire.....						12												7	19	
New Jersey.....						3						1					1	1	9	13
New Mexico.....	2					58		3				100	18	7		41	3	63	221	
New York.....	11			42	5		23	3		70	4	41	2	10		3	26	39	39	
New York ^b										7	34	2	2	1		7	19	29	214	
North Carolina.....	5	2				144						41	2	1		4	5	16	16	
Ohio.....		8		54	83	28		2	4			5		1	20		5	25	58	
Oklahoma.....			19		9	28	9				1	2								
Oregon.....	5	1		115	4	125	24					15		2				32	385	
Pennsylvania.....	1	19			11	31	1			203	14	228	1	13		30	9	23	69	

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Placer mines not included.

TABLE 15.—Percentages of deaths and injuries in and about all metal and miscellaneous mineral mines (except coal mines) of the United States resulting from various causes in the calendar years 1911 and 1912.

Cause of death.	Killed.						
	Copper mines.	Gold and miscellaneous metal mines.	Iron mines.	Lead and zinc mines (Mississippi Valley).	Miscellaneous mineral mines.	Average for all mines, 1912.	Average for all mines, 1911.
	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Fall of rock or ore from roof or wall.	36.40	27.84	31.98	33.33	15.00	32.10	27.48
Rock or ore while loading at working face.		0.57	0.58			0.30	(a)
Timber or hand tools.	1.67	0.57	0.58			0.90	1.44
Explosives.	8.78	15.34	8.72	16.67	5.00	11.04	8.92
Haulage accidents.	3.77	3.98	9.89	1.85	5.00	5.29	2.88
Fall down chute, winze, raise, or stope.	6.69	9.65	5.24	1.85		6.50	6.76
Run of ore from chute or pocket.	2.51	1.14		1.85		1.51	2.01
Drilling accidents.	0.42		0.58			0.30	
Electricity.	3.77	2.84		5.56		2.87	2.16
Machinery (not including locomotives or drills).			1.16			1.44	1.44
Mine fires.		0.57				0.15	5.32
Suffocation from natural gases.	0.42	1.70				0.61	1.15
Inrush of water.			2.91			0.76	1.73
Stepping on nail.				3.70		1.21	(a)
Other causes.	1.26	0.57	1.16				1.44
Total killed underground	65.69	64.77	64.54	64.81	25.00	63.84	62.73
Falling down shafts.							8.20
Objects falling down shafts.	4.80	9.09	4.07	9.26	5.00	6.05	2.59
Breaking of cables.	0.84	1.14	2.33	7.41		1.82	0.58
Overwinding.						0.30	
Skip or cage.	5.86	5.68	7.56				
Other causes.	0.42	1.70	0.58	7.41		5.60	3.88
Total killed in shaft	11.72	18.75	14.54	24.08	5.00	15.13	15.25
Mine cars or mine locomotives.							0.58
Railway cars and locomotives.	0.42	1.70	1.16			0.91	0.76
Run or fall of ore in or from ore bins.	2.09		1.16			0.30	0.43
Falls of persons.	1.67		1.16			0.91	(a)
Stepping on nail.							(a)
Hand tools, axes, bars, etc.							(a)
Electricity.	1.26	0.57	0.58			0.76	0.29

Machinery.....	1.26	2.84	0.58	1.85	5.00	1.66	1.15
Other causes.....	6.27	1.70	0.58	7.41	5.00	3.63	6.04
Total killed on surface.....	12.97	6.81	5.22	9.26	10.00	8.93	9.64
Falls or slides of rock or ore.....	1.26	2.84	2.91	.....	15.00	2.42	5.04
Explosives.....	5.41	0.57	2.91	.....	10.00	3.17	2.31
Hoisting accidents.....	1.67	2.27	6.40	.....	5.00	3.03	3.02
Steam shovels.....	0.84	1.11	.....	.....	.....	0.81	0.14
Falls of persons.....	.....	0.57	0.58	.....	5.00	0.45	0.43
Falls of derricks, beams, etc.....	.....	.....	1.16	.....	.....	0.30	0.14
Run or fall of ore in or from ore bins.....	.....	.....	.....	.....	.....	.....	.....
Machinery (other than locomotives or steam shovels).....	.....	0.57	1.16	1.85	10.00	0.91	0.43
Electricity.....	.....	0.57	.....	.....	.....	0.15	.....
Hand tools.....	.....	.....	.....	.....	.....	.....	.....
Other causes.....	0.42	1.14	0.58	.....	15.00	1.06	0.87
Total killed by surface accidents (where surface mining is done).....	9.62	9.67	15.70	1.85	60.00	12.10	12.38
.....	100.00	100.00	100.00	100.00	100.00	100.00	100.00

^a Included in other causes.

TABLE 15.—Percentages of deaths and injuries in and about all metal and miscellaneous mineral mines (except coal mines) of the United States resulting from various causes in the calendar years 1911 and 1912—Continued.

Cause of injury.	Seriously injured.						Slightly injured.							
	Copper mines.	Gold and miscellaneous metal mines.	Iron mines.	Lead and zinc mines (Mississippi Valley).	Miscellaneous mineral mines.	Average for all mines, 1912.	Average for all mines, 1911.	Copper mines.	Gold and miscellaneous metal mines.	Iron mines.	Lead and zinc mines (Mississippi Valley).	Miscellaneous mineral mines.	Average for all mines, 1912.	Average for all mines, 1911.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Fall of rock or ore from roof or wall.....	29.88	28.38	19.44	21.09	5.19	24.48	29.12	27.05	22.61	19.36	14.49	1.35	22.42	28.96
Rock or ore while loading at working face.....	6.86	4.08	5.45	9.53	.....	5.80	(a)	12.57	6.88	7.96	23.74	5.26	10.95	(a)
Timber or hand tools.....	6.25	5.71	9.00	2.04	.....	6.95	6.41	9.06	11.29	11.99	3.08	1.65	9.70	8.02
Explosives.....	2.55	4.73	3.94	4.08	0.74	3.40	3.33	0.50	1.10	1.39	1.08	1.50	0.94	1.08
Haulage accidents.....	10.62	9.62	16.17	18.37	7.41	12.86	14.54	8.03	11.01	13.71	10.87	5.56	10.41	13.05
Fall down chute, winze, raise, or slope.....	5.70	7.67	2.61	2.04	0.74	4.46	3.86	3.83	3.49	1.62	1.84	0.15	2.82	3.33
Run of ore from chute or pocket.....	3.98	3.59	0.95	1.36	.....	2.51	2.52	3.96	7.04	2.54	0.76	.....	3.54	3.91
Drilling accidents.....	4.93	3.59	4.60	4.76	1.48	4.51	4.56	4.54	7.20	5.83	6.33	2.85	5.38	5.39
Electricity.....	0.33	.....	0.06	.....	.....	0.16	0.07	0.11	0.16	0.13	0.11	0.15	0.12	0.13
Machinery (not including locomotives or drills).....	1.11	1.80	0.61	2.72	3.70	1.13	2.54	1.46	1.41	1.05	5.68	0.90	1.60	2.57
Mine fires.....	0.06	.....	.....	.....	.....	0.02	0.00	0.04	0.19	.....	.....	.....	0.04	0.11
Suffocation from natural gases.....	.....	0.33	0.16	.....	.....	0.11	0.02	0.03	0.38	0.17	.....	.....	0.11	0.08
Inrush of water.....	.....	0.16	0.11	.....	.....	0.07	0.00	0.01	.....	0.07	.....	.....	0.03	0.06
Stepping on nail.....	0.39	0.16	0.06	.....	.....	0.20	(a)	1.04	0.79	0.81	0.76	.....	0.89	(a)
Other causes.....	6.70	7.83	5.06	4.76	1.48	5.97	7.63	12.76	11.48	6.44	15.04	1.65	10.38	14.04
Total injured underground.....	79.36	77.65	68.22	70.75	20.74	72.63	74.60	84.99	85.03	73.07	83.78	21.02	79.33	78.73
Falling down shafts.....	0.94	1.47	0.39	1.36	.....	0.78	1.01	0.39	0.19	0.13	0.32	0.00	0.26	0.23
Objects falling down shafts.....	1.22	1.79	0.72	2.04	0.74	1.11	0.96	0.75	1.10	0.90	1.46	0.00	0.87	0.96
Breaking of cables.....	.....	0.33	0.06	.....	.....	0.07	0.05	.....	0.03	0.01	0.05	0.00	0.01	0.02
Overwinding.....	.....	.....	.....	.....	.....	.....	0.29	.....	0.06	0.01	0.11	0.00	0.02	0.06
Ship of cage.....	1.44	1.63	1.84	1.36	.....	1.57	(a)	0.45	0.88	0.72	1.63	0.00	0.66	(a)
Other causes.....	0.11	1.14	0.33	2.04	.....	0.40	1.36	0.30	0.63	0.57	1.03	0.00	0.48	0.84
Total injured in shaft.....	3.71	6.36	3.34	6.80	0.74	3.93	3.67	1.89	2.89	2.34	4.60	0.00	2.30	2.11
Mine cars or mine locomotives.....	0.50	1.63	0.72	.....	.....	0.71	1.20	0.46	0.57	0.49	1.14	0.30	0.53	0.06
Railway cars and locomotives.....	0.66	0.49	0.61	.....	0.74	0.60	0.36	0.14	0.09	0.34	0.05	0.15	0.20	0.19
Run or fall of ore in or from ore bins.....	0.39	.....	0.56	1.36	.....	0.42	0.38	0.25	0.16	0.56	0.92	.....	0.38	0.44

Falls of persons.....	1.09	1.30	2.22	1.35	0.74	1.93	(a)	0.79	0.75	1.03	1.08	0.15	1.17	(a)
Stepping on nail.....	0.17	0.33	0.11	0.68	.....	0.14	(a)	0.14	0.88	0.52	0.97	1.35	0.44	(a)
Hand tools, axes, bars, etc.....	1.55	0.49	1.72	0.68	0.71	1.40	(a)	1.11	1.54	3.27	1.89	1.35	1.90	(a)
Electricity.....	0.06	0.49	.....	.....	.....	0.09	0.02	0.04	0.35	0.10	0.00	.....	0.09	0.10
Machinery.....	3.04	1.96	1.56	5.45	0.71	2.31	2.31	1.26	1.35	1.65	1.57	0.60	1.41	1.29
Other causes.....	2.32	3.75	2.72	4.08	2.23	2.73	4.37	1.85	2.33	2.59	3.68	2.56	2.30	4.68
Total injured on surface.....	10.68	9.95	10.22	13.61	5.19	10.33	8.54	6.04	8.02	11.45	11.30	5.11	8.42	7.30
Falls or slides of rock or ore.....	1.77	0.33	4.44	.....	7.41	2.75	2.25	1.79	1.07	1.94	0.11	2.40	1.65	1.90
Explosives.....	1.05	1.16	1.72	.....	2.96	1.20	0.98	0.40	0.06	0.65	.....	2.10	0.46	0.49
Haulage accidents.....	1.00	1.00	2.55	.....	0.63	1.71	2.95	0.72	0.06	1.91	.....	7.06	1.15	1.68
Steam shovels.....	1.05	1.80	1.89	2.04	2.22	1.55	1.54	0.72	0.19	1.64	.....	0.60	0.91	0.80
Falls of persons.....	0.50	0.65	1.45	.....	5.19	1.02	1.30	0.76	0.60	1.39	0.05	8.11	1.08	1.33
Falls of derricks, booms, etc.....	0.11	0.49	0.17	3.40	.....	0.29	0.24	0.24	.....	0.05	.....	0.45	0.13	0.31
Run or fall of ore in or from ore bus.....	.....	0.16	.....	.....	.....	0.02	0.10	.....	.....	0.06	0.11	0.15	0.03	0.04
Machinery (other than locomotives or steam shovels).....	.....	0.16	.....	.....	8.89	0.56	1.10	0.32	0.13	0.62	.....	7.66	0.56	1.34
Electricity.....	0.17	0.65	0.33	2.04	1.48	0.14	0.07	0.04	.....	.....	0.05	0.15	0.03	0.04
Hand tools.....	.....	0.82	1.83	.....	3.19	1.00	(a)	0.23	1.29	2.40	.....	7.96	1.26	(a)
Other causes.....	0.60	0.82	3.89	1.36	30.36	2.87	2.76	1.86	0.66	2.48	.....	37.23	2.69	3.93
Total injured by surface accidents (where surface mining is done).....	6.25	6.04	18.22	8.84	73.33	13.11	13.19	7.08	4.06	13.14	0.32	73.87	9.95	11.86
.....	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

a Included in other causes.

TABLE 16.—Number of men killed or injured per 1,000 employed in and about all metal and miscellaneous mineral mines (except coal mines) of the United States, based on the actual average number of days worked, compared with similar data based on a year of 300 working days.^a

State.	Average days worked, 1912.	Number of fatalities.		Number of serious injuries.		Number of slight injuries.	
		As reported.	On 300-day basis.	As reported.	On 300-day basis.	As reported.	On 300-day basis.
Alabama.....	270	6.84	7.60	59.46	66.13	364.82	405.53
Alaska 6.....	341	10.97	9.65	13.06	11.49	35.41	20.41
Arizona.....	302	4.30	4.28	35.21	35.03	235.20	234.18
Arkansas.....	257	2.48	2.89	7.43	8.07	24.75	28.91
California.....	276	3.88	4.22	16.19	17.60	67.69	73.58
Colorado.....	299	5.40	5.42	15.41	15.47	77.37	77.70
Connecticut.....	297	0.00	0.00	0.00	0.00	0.00	0.00
Florida.....	296	1.34	1.36	8.74	8.86	43.04	43.62
Georgia.....	218	0.00	0.00	0.00	0.00	56.31	77.54
Idaho.....	272	4.66	5.14	9.79	10.81	105.80	116.82
Illinois.....	301	2.27	2.26	34.09	33.94	54.55	54.30
Indiana, Louisiana, and West Virginia.....	362	0.00	0.00	49.07	40.62	370.56	306.72
Iowa.....	244	0.00	0.00	0.00	0.00	85.00	104.20
Kansas.....	234	2.41	3.09	3.61	4.64	32.49	41.73
Kentucky.....	187	2.17	3.50	0.00	0.00	19.57	31.47
Maine.....	225	0.00	0.00	0.00	0.00	0.00	0.00
Maryland.....	271	0.00	0.00	0.00	0.00	0.00	0.00
Massachusetts.....	290	0.00	0.00	0.00	0.00	3.04	3.37
Michigan.....	304	3.26	3.22	41.16	40.67	232.48	229.73
Minnesota.....	287	3.02	3.15	51.75	54.01	215.41	224.79
Missouri.....	267	3.16	3.54	8.95	10.04	139.09	156.16
Montana.....	298	3.75	3.77	16.79	16.89	149.78	150.63
Nevada.....	295	4.51	4.58	21.47	21.83	87.72	89.19
New Hampshire.....	187	11.11	17.86	0.00	0.00	55.56	89.20
New Jersey.....	282	7.96	8.46	33.68	35.78	318.43	338.32
New Mexico.....	268	5.20	5.82	5.20	5.82	61.55	69.00
New York.....	292	6.27	6.46	25.83	26.59	121.77	125.33
North Carolina.....	201	0.94	1.39	12.17	18.13	46.82	69.74
Ohio.....	246	3.23	3.92	16.13	19.61	64.52	78.43
Oklahoma.....	209	3.70	5.31	3.70	5.31	88.72	127.32
Oregon.....	189	0.95	1.51	4.75	7.54	23.76	37.71
Pennsylvania.....	251	2.62	3.14	7.87	9.40	2.62	3.14
South Carolina.....	275	0.00	0.00	9.61	10.47	24.98	27.23
South Dakota.....	300	3.06	3.06	12.74	12.74	76.92	76.92
Tennessee.....	253	3.45	4.08	21.55	25.53	90.52	107.22
Texas.....	277	0.00	0.00	0.00	0.00	7.77	8.43
Utah.....	302	4.85	4.81	28.02	27.83	139.90	139.02
Vermont.....	250	11.05	13.25	33.15	39.74	33.15	39.74

Virginia.....	274	1.59	1.74	8.35	9.13	39.75	43.50
Washington.....	151	3.06	6.10	2.30	4.57	15.30	30.49
Wisconsin.....	271	5.74	6.35	21.39	23.67	140.06	154.98
Wyoming.....	236	6.04	7.69	1.51	1.92	4.53	5.77
Average.....	287	3.91	4.07	26.61	27.85	153.04	162.26

^a For details giving number killed, number employed, and days worked, see Table 5; for number injured, see Table 13.

^b Does not include placer mines.

TABLE 17.—*Number of men employed, number of days worked, and number of men killed per 1,000 employed in and about all metal and miscellaneous mineral mines (except coal mines) in the United States (by States) in the calendar year 1911.*

State.	Number of active operators.	Number of employees.		Average number of days worked.	Number killed.				Widows.	Orphans.
		Under-ground.	On the surface.		Under-ground. ^a	Per 1,000 employed.	On the surface.	Per 1,000 employed.		
			Total.	Days' work done.				Total.		
Alabama.....	25	2,250	1,851	4,101	1,350,944	8	3.56	1.08	10	2.44
Arizona.....	352	9,121	3,597	12,718	3,686,479	61	6.65	2.50 ^b	70	5.48
Arkansas.....	20	127	457	584	146,246	2	15.75	.....	2	3.42
California.....	855	7,065	3,812	10,877	3,061,843	31	4.39	1.84	38	3.49
Colorado.....	690	8,243	2,161	10,404	3,150,356	36	4.37	3.24	43	4.13
Connecticut.....	6	70	94	164	45,644	272	.....	.....	0	0
Florida.....	21	0	4,305	4,305	1,283,315	0	.....	2.09	9	2.09
Georgia.....	33	162	839	1,001	241,242	0	.....	2.38	2	2.00
Idaho.....	513	3,588	1,213	4,801	1,243,744	15	4.18	6.60	23	4.79
Illinois.....	15	468	380	848	233,963	1	2.14	1.18	1	1.18
Indiana and West Virginia.....	3	3	55	58	16,700	0	.....	18.18	1	17.24
Iowa.....	14	207	37	244	70,550	1	4.83	4.10	1	4.10
Kansas.....	45	487	242	729	161,213	2	4.11	.....	2	2.74
Kentucky.....	20	104	297	461	121,530	3	18.29	.....	3	6.51
Maine.....	4	2	79	81	18,920	0	.....	.....	0	0
Maryland.....	20	72	159	231	53,292	0	.....	.....	0	0
Massachusetts.....	7	47	71	118	26,994	0	.....	.....	0	0
Michigan.....	74	22,470	9,114	31,584	9,385,524	124	5.52	1.10	134	4.24
Minnesota.....	40	7,673	8,875	16,548	4,175,782	33	4.30	4.85	76	4.59
Missouri.....	337	7,288	2,613	9,901	2,508,345	26	3.57	4.59	38	3.84
Montana.....	332	10,321	3,025	13,346	4,015,502	56	5.43	1.98	62	4.65
Nevada.....	472	4,292	1,918	6,210	1,829,108	43	10.02	3.65	50	8.05
New Hampshire.....	5	63	37	100	25,524	0	.....	.....	0	0
New Jersey.....	14	1,296	443	1,739	477,583	21	16.20	4.51	23	13.23
New Mexico.....	134	1,450	1,000	2,450	757,495	7	4.83	4.00	11	4.49
New York.....	32	2,297	905	3,202	630,133	10	4.35	2.96	10	3.12
North Carolina.....	57	659	338	997	169,983	3	4.55	.....	4	4.01
Ohio.....	7	335	27	362	97,720	0	.....	.....	0	0
Oklahoma.....	32	238	180	418	82,620	0	.....	.....	0	0
Oregon.....	210	812	582	1,394	332,049	2	2.46	.....	2	1.33
Pennsylvania.....	38	623	623	1,246	214,076	0	4.18	.....	1	1.16
South Carolina.....	5	11	973	984	294,900	0	.....	.....	1	1
South Dakota.....	58	1,937	582	2,519	595,262	8	4.13	.....	8	3.18
Tennessee.....	40	1,018	3,436	4,454	1,156,005	8	7.86	0.58	10	2.25
Texas.....	9	183	65	248	73,870	0	.....	5.38	49	6.36
Utah.....	285	4,920	2,790	7,710	2,478,517	34	6.91	.....	0	0
Vermont.....	10	38	142	180	42,639	0	.....	.....	0	0
Virginia.....	49	1,603	2,368	3,971	1,036,461	2	1.25	1.69	6	1.51
Washington.....	238	1,037	532	1,569	315,342	2	0.96	3.76	3	1.91
Wisconsin.....	73	2,054	790	2,844	736,463	3	1.46	.....	3	1.05
Wyoming.....	58	263	349	612	162,695	0	.....	.....	0	0
Total 1911.....	5,232	104,623	61,350	165,979	46,826,573	542	5.18	2.49	605	4.19
						133			297	

^a Includes those killed in shaft accidents.

TABLE 18.—Number of men seriously and slightly injured per 1,000 employed in and about all metal and miscellaneous mineral mines (except coal mines) in the United States (by States) in the calendar year 1911.

State.	Numbers seriously injured.					Number slightly injured.				
	Under-ground. ^a	Per 1,000 employed.	On the surface.	Per 1,000 employed.	Total.	Under-ground. ^a	Per 1,000 employed.	On the surface.	Per 1,000 employed.	Total.
Alabama.....	129	57.33	24	12.97	133	1,102	516.44	122	65.91	1,284
Arizona.....	303	33.04	33	9.18	336	1,971	214.92	343	96.36	2,314
Arkansas.....	0	0	2	4.38	2	6	47.24	3	6.36	9
California.....	89	12.00	34	8.32	123	304	43.03	97	23.45	401
Colorado.....	115	13.96	13	6.02	128	321	63.21	89	41.18	410
Connecticut.....	1	14.29	0	0	1	1	14.29	0	0	1
Florida.....	0	0	34	7.90	34	0	0	124	28.80	124
Georgia.....	2	12.35	7	8.54	9	0	0	13	15.49	13
Idaho.....	37	10.31	6	4.83	43	551	153.57	24	19.79	575
Illinois.....	0	0	1	2.03	1	20	12.33	0	0	20
Indiana.....	0	0	1	0	1	0	0	0	0	0
Iowa.....	4	19.32	0	0	4	14	33.33	4	108.11	18
Kansas.....	6	12.32	3	12.40	9	56	119.99	13	53.72	69
Kentucky.....	0	0	0	0	0	2	12.20	11	37.04	13
Louisiana.....	0	0	0	0	0	7	97.22	0	0	7
Maine.....	2	27.78	1	6.29	3	0	0	0	0	0
Maryland.....	0	0	0	0	0	0	0	0	0	0
Massachusetts.....	0	0	0	0	0	0	0	0	0	0
Michigan.....	1,140	51.62	108	11.55	1,248	5,588	248.69	496	54.42	6,084
Minnesota.....	679	88.49	432	50.93	1,111	3,217	419.96	1,842	207.55	5,059
Missouri.....	115	15.78	25	9.57	140	990	135.84	110	42.10	1,100
Montana.....	121	11.72	17	5.62	138	973	94.97	102	33.72	1,075
Nevada.....	49	11.42	26	13.56	75	193	44.97	105	54.74	298
New Hampshire.....	0	0	0	0	0	1	15.87	0	0	1
New Jersey.....	25	19.29	4	9.03	29	379	292.44	10	22.57	389
New Mexico.....	15	10.34	15	15.00	30	18	12.41	45	45.00	63
New York.....	73	31.78	10	11.05	83	254	110.58	20	22.10	274
North Carolina.....	8	12.14	3	8.88	11	14	21.24	7	20.71	21
Ohio.....	8	23.88	1	37.04	9	31	92.54	1	37.04	32
Oklahoma.....	1	4.20	1	5.56	2	5	21.01	0	0	5
Oregon.....	4	4.93	0	0	4	10	12.32	5	8.59	15
Pennsylvania.....	0	0	0	0	0	5	20.92	0	0	5
South Carolina.....	0	0	0	0	0	0	0	1	1.03	1
South Dakota.....	34	17.55	5	8.59	39	617	323.70	38	65.29	685
Tennessee.....	45	44.20	7	2.04	52	292	208.25	34	4.07	226
Texas.....	0	0	0	0	0	0	0	0	0	0
Utah.....	163	33.13	41	14.70	204	679	138.01	566	202.87	1,245
Vermont.....	0	0	0	0	0	1	26.32	1	5.56	2
Virginia.....	20	12.48	13	5.49	33	69	43.04	25	10.56	94
Washington.....	5	4.82	1	1.88	6	11	10.61	3	5.64	14
Wisconsin.....	39	18.99	19	24.05	58	219	106.62	59	74.68	278
Wyoming.....	0	0	0	0	0	3	11.41	1	2.87	4
Total 1911.....	3,263	31.19	906	14.77	4,169	18,115	173.15	4,293	69.97	22,408

^a Includes those injured in shaft accidents.

TABLE 19.—Comparison, by years, of the number of men employed in the metal mines of the principal countries, showing the fatality rate per 1,000 persons employed.^a

Country.	1906			1907			1908			1909			1910			1911			1912		
	Number employed.	Number killed.	Number killed per 1,000 employed.	Number employed.	Number killed.	Number killed per 1,000 employed.	Number employed.	Number killed.	Number killed per 1,000 employed.	Number employed.	Number killed.	Number killed per 1,000 employed.	Number employed.	Number killed.	Number killed per 1,000 employed.	Number employed.	Number killed.	Number killed per 1,000 employed.	Number employed.	Number killed.	Number killed per 1,000 employed.
Australasia:																					
New South Wales.....	27,347	29	1.06	26,402	24	0.91	20,881	32	1.53	17,836	20	1.12	19,369	29	1.50	19,360	35	1.81	19,807	31	1.57
New Zealand.....	8,716	14	1.61	9,389	7	0.75	8,880	15	1.69	7,651	14	1.83	8,121	15	1.85	7,400	5	0.68	10,608	25	2.45
Queensland.....	16,273	22	1.35	15,416	13	0.84	13,759	29	2.11	12,050	26	2.16	12,342	18	1.46	11,091	10	0.90	5,566	53	9.52
Tasmania ^b	7,004	4	0.57	7,516	6	0.80	6,464	6	0.93	6,054	6	0.99	5,770	8	1.39	5,247	4	0.76	11,856	16	1.35
Victoria.....	25,304	23	0.99	23,291	27	1.16	20,833	19	0.91	18,671	15	0.80	16,553	12	0.72	14,051	19	1.35	13,700	35	2.55
Western Australia.....	16,608	39	2.35	16,058	42	2.62	16,073	40	2.49	19,027	33	1.94	16,279	27	1.66	15,428	36	2.33			
Austria.....	20,238	14	0.69	20,411	21	1.03	20,255	10	0.49	19,582	19	0.97	19,621	16	0.82						
France.....	20,646	51	2.47	24,197	55	2.27	24,179	51	2.11	24,436	73	2.99	27,183	86	3.16						
Germany.....	35,212	119	1.25	98,441	135	1.37	97,062	115	1.18	93,928	91	0.97	93,645	141	1.51						
Great Britain ^c	30,251	36	1.19	31,602	34	1.08	29,927	37	1.24	28,437	40	1.41	28,676	43	1.50	29,025	43	1.48	28,058	43	1.53
Greece.....	11,043	17	1.55	11,720	23	1.96				8,389	13	1.55	6,933	9	1.30						
Italy.....	82,558	91	1.45	59,597	113	1.90	75,590	70	0.93	81,312	68	1.31	49,995	59	1.18						
Japan.....	91,353	203	2.50	85,663	113	1.32				52,648	139	2.64	84,728	118	1.39	80,896	142	1.76			
Mexico ^d	72,023	302	4.19	92,421	479	5.18	85,107	395	4.64	81,438	471	5.78									
Peru ^e	13,961			16,596			17,349	40	2.31	17,580	21	1.19	20,410	118	5.78						
Portugal.....	4,673	2	0.43	3,928	10	2.55	6,991	9	1.29	7,858	11	1.40	6,554	11	1.68	7,484	10	1.34			
Russia.....	180,051	153	0.74	194,916	155	0.80	191,334	178	0.93	121,866	282	2.31	126,423	256	2.02	120,781	180	1.49			
Spain.....	118,201	272	2.30	131,943	304	2.30	120,872	275	2.28	131,238	16	1.21	13,775								
Sweden ^f	14,767	18	1.22	14,204			14,628	16	1.09	192,038	1,018	5.30	206,087	882	4.29	225,538	934	4.14			
Sweden ^g	155,317	878	5.65	168,991	805	4.76	181,637	761	4.19							165,979	695	4.19	169,199	661	3.91
United States.....																					

^a Compiled from official reports.
^b Figures for mines in Tasmania also cover coal mines and smelting works. The high rate for 1912 is due to one disastrous mine fire.
^c Figures cover only mines coming under the "Metalliferous Mines Regulation Act."
^d Figures also cover coal mines.
^e Figures also cover coal mines in which about 25,000 men are employed annually.
^f Figures also cover coal mines and quarries.

PUBLICATIONS ON MINE ACCIDENTS AND METHODS OF MINING.

The following Bureau of Mines publications may be obtained free by applying to the Director, Bureau of Mines, Washington, D. C.:

BULLETIN 10. The use of permissible explosives, by J. J. Rutledge and Clarence Hall. 1912. 34 pp., 5 pls., 4 figs.

BULLETIN 17. A primer on explosives for coal miners, by C. E. Munroe and Clarence Hall. 61 pp., 10 pls., 12 figs. Reprint of United States Geological Survey Bulletin 423.

BULLETIN 20. The explosibility of coal dust, by G. S. Rice, with chapters by J. C. W. Frazer, Axel Larson, Frank Haas, and Carl Scholz. 204 pp., 14 pls., 28 figs. Reprint of United States Geological Survey Bulletin 425.

BULLETIN 44. First national mine-safety demonstration, Pittsburgh, Pa., October 30 and 31, 1911, by H. M. Wilson and A. H. Fay, with a chapter on the explosion at the experimental mine, by G. S. Rice. 1912. 75 pp., 7 pls., 4 figs.

BULLETIN 45. Sand available for filling mine workings in the Northern Anthracite Coal Basin of Pennsylvania, by N. H. Darton. 1913. 33 pp., 8 pls., 5 figs.

BULLETIN 46. An investigation of explosion-proof mine motors, by H. H. Clark, 1912. 44 pp., 6 pls., 14 figs.

BULLETIN 48. The selection of explosives used in engineering and mining operations, by Clarence Hall and S. P. Howell. 1913. 50 pp., 3 pls., 7 figs.

BULLETIN 52. Ignition of mine gases by the filaments of incandescent electric lamps, by H. H. Clark and L. C. Ilsley. 1913. 31 pp., 6 pls., 2 figs.

BULLETIN 62. National mine-rescue and first-aid conference, Pittsburgh, Pa. September 23-26, 1912, by H. M. Wilson. 1913. 74 pp.

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